# The Applicability of the Community of Inquiry Framework to online/ blended Nursing Education in Australia

By

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# DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

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# ABSTRACT


## Introduction

The quality of online/blended courses is centred on the content and the need for suitable pedagogical design, clear instruction, and a collaborative environment based on a valid and reliable theoretical framework. Nursing education requires a transformation of its pedagogy and learning frameworks to provide meaningful online or blended learning experiences for students. Gaining online/blended teaching skills is integral to the nurse educators' role in supporting the collaborative nature of the profession. The Community of Inquiry (CoI) framework, described by Garrison, Anderson, and Archer (2000), offers the potential for designing deep, meaningful, and interactive online education experiences in higher education. The CoI framework is a social constructivist-informed framework comprising cognitive, social, and teaching presence, which may reduce the gap between pedagogy, technology, and learners' needs in nursing education. Therefore, this study investigates the applicability of the CoI framework to online/blended nursing education in Australia.

**Aim:** This study aims to examine the applicability of the Community of Inquiry (CoI) framework to online/blended nursing education in Australia.

## Methods

The thesis uses an explanatory sequential mixed-methods approach, incorporating the pragmatist paradigm of John Dewey. The focus of the study is nurse educators' opinions on the applicability of the CoI framework to online/blended nursing courses, and their perceptions of their current practice in relation to the core concepts of CoI. The use of explanatory sequential mixed-methods research allowed Phase II to explain and explore in great depth the issues, barriers, and facilitators faced by the educator when designing and evaluating online/blended courses. The integration of the two phases was used to formulate meta-inferences and collective meaning that was more meaningful than if each phase had been analysed separately.

## Results

A total of 138 nursing academics and educators from several Australian universities participated in the quantitative (phase I) online national survey. In Phase II, 11 academics from three Australian universities participated in a semi-structured interview. The results were integrated using a joint display table and then meta-inferences were drawn from the sum of both phases.

Phase I findings revealed that nursing educators rated the core CoI concepts on a Likert scale as applicable to online/blended nursing education. Despite this applicability, most nursing educators revealed that they did not use an explicit theoretical framework to design or evaluate online/blended courses. Phase II results explained in-depth phase I findings while exploring the issues, challenges, and facilitating factors that affected the adoption of the CoI framework for online/blended nursing education. The thematic analysis identified that the CoI framework was implicitly embedded in the educators' practices in course design and delivery and generated knowledge about the challenges and facilitators faced in adopting the CoI framework. The challenges included a lack of use and understanding of an educational theoretical framework, an insufficient evaluation process, feelings of isolation and low motivation, inadequate e-learning support, the large size of the student cohort, the complex learning management system, and heavy workloads. In contrast, a number of current practices facilitated the adoption of the CoI framework, such as the use of case/problem-based learning and blended learning, formative assessment, group work, and content co-creation of materials. The integration of the two study phases produced metainferences of the transformative role that CoI can play in nursing education.

The study findings indicated the potential of the CoI framework to transform nursing education and generate a transitional model to help novice educators in their role while they are changing to become better online educators. The key in this transformation is the explicit use of the CoI framework in course design, delivery, and evaluation. The CoI framework can transform nursing education by providing a comprehensive framework focusing on the teaching, social, and cognitive aspects of education. For example, teaching presence can be promoted by using videocasts, podcasts, webinars, discussion forum interactions, live chat, and a range of other approaches. Social

presence can be facilitated through various blended learning methods involving social media and inter-professional education. Finally, the development of cognitive presence includes constructing authentic assessment items that require critical thinking and collaborative problem-solving through simulation technology.

## Conclusion

The CoI framework is applicable to online nursing education, but a number of barriers still need to be identified and overcome. The use of the CoI framework could conceivably transform online nursing education in Australia. Recommendations include institutional support for nursing educators' development in using a theoretical framework to design online courses, and investment by universities in the use of the CoI framework to design, deliver, evaluate, and research online courses. Given the government and university emphasis on improving nursing student satisfaction and reducing attrition, it is essential to acknowledge how CoI has contributed positively to outcomes in non-health disciplines. However, for the CoI framework to be maximised, universities should invest in staff development programs to assist staff to become competent in using the framework.

# DEFINITION OF TERMS

*Community of Inquiry theoretical framework:* “The Community of Inquiry theoretical framework represents a process of creating a deep and meaningful (collaborative-constructivist) learning experience through the development of three interdependent elements – social, cognitive and teaching presence” (Garrison, 2017, pp. 24-25).

*Educational Community of Inquiry:* “Is composed of teachers and students transacting with the specific purposes of facilitating, constructing, and validating understanding, and of developing capabilities that will lead to further learning” (Garrison & Anderson, 2003, p. 23).

*E-learning:* Is an approach to teaching and learning, representing all or part of the educational model applied that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction and that facilitate the adoption of new ways of understanding and developing learning (Sangrà et al., 2012, p. 152).

*Blended Learning:* “The organic integration of thoughtfully selected and complementary face-to-face and online approached and technologies” (Garrison & Vaughan, 2008, p. 48).

*Cognitive presence:* “Is the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse” (Garrison et al., 2001, p. 11)

*Teaching presence:* “Is the design, facilitation, and direction of cognitive and social processes for the purpose of realising personally meaningful and educationally worthwhile learning outcomes” (Anderson et al., 2001, p. 5).

*Social presence:* “Is the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities” (Garrison, 2009, p. 352)

*Mixed-methods research:* An approach to research in the social, behavioural, and health sciences in which the investigator gathers both quantitative (closed-ended) and qualitative (open-ended) data,

integrates the two and then draws interpretations based on the combined strengths of both sets of data to understand the research problem (Creswell, 2015, p. 2).

*Constructivism:* "The individual process of making sense (creating meaning) from new experiences by building on and integrating previous knowledge and experiences; the general goals are to develop critical thinking and metacognitive skills" (Garrison, 2013, pp. 10-11).

*Social constructivism*: "A social learning theory developed by Russian psychologist Lev Vygotsky, posits that individuals are active participants in the creation of their own knowledge [and] learning takes place primarily in social and cultural settings, rather than solely within the individual" (Schreiber & Valle, 2013, p. 396)

*Practical Inquiry*: "Reflects the critical thinking process and the means to create cognitive presence" (Garrison et al., 2001, p. 11).

*Fully online course:* "A course where most or all the content is delivered online. Typically have no face-to-face meetings" (Allen & Seaman, 2014, p. 6).

*Summative Assessment:* A formal method of assessment that provides information to judge the extent to which a student has achieved course or program objectives. Summative assessment is used to determine a final grade.

*Topic:* A subject that forms part of a course. A full-time first-year student will normally enrol in four topics each semester, depending on their course requirements. Some universities call topics 'subjects'. In this study, the words 'topic' and 'subject' have been used interchangeably.

*Learning activity/activities:* How a topic will be taught, e.g., lectures, practicals, tutorials, seminars, etc.

*Nurse educator/academic*: Mainly a registered nurse with postgraduate qualification and above, who teach in a higher education institution. The World Health organization recommended that "Nurse educators demonstrate the skills and abilities to design, implement, monitor and manage curricula

based on sound, contemporary educational models, principles, and best evidence" (World Health Organization 2016, p. 12)

*Novice nursing educator:* " Is a registered nurse with no experience in nursing education or teaching in academia, who initially lacks the understanding of the role of nursing education" (Benner et al., 2009a).

# LIST OF ACRONYMS

| | |
|---|---|
| **ABS** | Australian Bureau of Statistics |
| **AV** | Audio-Video |
| **BL** | Blended Learning |
| **CCTDI** | California Critical Thinking Disposition Inventory |
| **CoI** | Community of Inquiry |
| **CP** | Cognitive Presence |
| **CPD** | Continuing Professional Development |
| **CRICOS** | Commonwealth Register of Institutions and Courses for Overseas Students |
| **E.L** | E-Learning |
| **F2FL** | Face-to-Face Learning |
| **ICT** | Information and Communications Technology |
| **IoT** | Internet of Things |
| **IV** | Intra Venous |
| **LMS** | Learning Management System |
| **MMR** | Mixed Methods Research |
| **PI** | Practical Inquiry |
| **PRISMA-ScR** | Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Review |
| **RCT** | Randomised Controlled Trial |
| **SP** | Social Presence |
| **SPSS** | Statistical Package for the Social Sciences |
| **TEQSA** | Tertiary Education Quality Standard Agency |
| **TP** | Teaching Presence |
| **U.K** | United Kingdom |
| **U.S** | United States of America |
| **ZPD** | Zone of Proximal Development |
| **IT** | Information Technology |

| | |
|---|---|
| **COreQ** | Consolidated criteria for Reporting Qualitative research |
| **SET** | Students Evaluation of Teaching |

# CHAPTER ONE: INTRODUCTION

## 1.1 Overview

Nursing education implores transformation to meet the requirements of the new digital-native students. The application of technology within the education setting ensures that nursing students are sufficiently prepared for entering the workforce. Academic institutions have updated their technology and are continuously integrating innovative teaching platforms into their offerings. Perhaps one of the most significant changes brought about by technology is the availability of online degree programs. This technological shift is also occurring in nursing education which is developing at a rapid pace. The COVID-19 pandemic has also demanded a shift to online education. Accordingly, nurse academics'/educators' roles are changing to keep up with the rapid technological improvements and to use the appropriate pedagogy to design their online/blended courses; however, a lack of theoretical and pedagogical knowledge negatively affects educational outcomes and, as a result, future graduate nurses and society as a whole.

E-learning is growing rapidly, shifting education from a 'face-to-face' delivery mode to a more flexible 'anywhere, anytime' method of accessing study materials. E-learning has been described as unpredictable, astonishing, incredible, and upsetting at the same time (Garrison & Anderson, 2003). This complex nature of e-learning makes it challenging to agree on a single definition. However, the adoption of this new medium is occurring much faster than our understanding of how to use e-learning to support a quality educational experience (Garrison & Akyol, 2013).

According to Garrison (2017, p. 3), the two major presentations of e-learning are online and blended learning modes. The higher education institutions use these two forms of e-learning to deliver courses. Blended learning mode utilised to capture the advantages of both the online and the face-to-face learning settings. The study of blended learning necessitates the study of the online mode because each blended learning course has an online component. In this

research, the terms ‘online’ and ‘blended’ learning will be used interchangeably. Otherwise, the word ‘fully online’ will be used to describe 100% online learning.

Several elements are involved in the expansion of the blended learning mode in higher education. Redmond (2011) discussed some of these, with the first being the sharp increase in online and communications technology. Every institution is attempting to grasp the potential benefits of online, web-based, and mobile technologies. Universities and educators are also trying to serve the digital-native students who are approaching the university with expectations of flexibility and availability of a modern and on-demand education system. The second element influencing the blended mode is increased student enrolment numbers at the same time as government funding for higher education has gradually reduced (Redmond, 2011). This places the educational institutions under pressure to accommodate increasing student numbers and maintain high-quality teaching while adhering to budgetary constraints. Garrison and Vaughan (2008, p. 146) observed that “efficiencies are needed to address the cost of higher education while addressing quality concerns. Blended learning offers a way to extend and to enhance the educational experience effectively and efficiently”. Hockly (2018) described low cost and increasingly accessible and affordable hardware and software as the twin economic drivers of the vast spread of blended learning.

The third element is the need for a blended approach to enrich the quality of teaching. Garrison and Vaughan (2008, p. 145) argued that blended learning could enhance the quality of higher education, as traditional methods (i.e. lectures) cannot adequately address higher-order learning experiences and outcomes demanded in the changing forms of knowledge required in a communication-based society. For example, Faulconer et al. (2018) compared students’ outcomes between online and traditional chemistry lecture and lab, and found that the students’ grade dignifcantly higher among online students. Finally, the COVID-19 pandemic has forced higher education institutions to rush their courses online to adhere to stay-at-home restrictions put in by governments. This placed significant pressure on educators to rapidly

move their courses online, as many of them were novices in designing online courses with limited pedagogical knowledge.

Most Australian universities offer online and blended learning courses to enable more people to access education while allowing greater flexibility than traditional education institutions (Clark-Ibáñez & Scott, 2008; Greenland & Moore, 2014). The potential benefits of online education for teaching and learning include flexibility for students and course coordinators, access to materials at any time, and intense participation and engagement using discussion boards. Online learning can overcome barriers to learning such as distance, geographical location, and cost, particularly in a vast country such as Australia (Greenland & Moore, 2014; McKenzie & Murray, 2010).

For example, Open Universities Australia, a shared endeavour by leading Australian universities, facilitated the spread of online education in Australia. According to their website, they offer more than 2,585 subjects in 541 different degrees (Open Universities Australia, 2021). Online learning is being progressively used more often in nursing education and clinical practice, especially in postgraduate studies. The technology used with this approach can enhance learning opportunities for students and qualified nurses. Moreover, engagement between students and well-designed pedagogically-informed web-based learning materials can produce profound education experiences and achieve beneficial learning outcomes (Green et al., 2014).

Many studies have focused on comparing outcomes between online education and traditional face-to-face education (Berga et al., 2021; Russell, 1999). The frequent finding of ‘no significant difference in outcomes’ when online education and traditional face-to-face education are compared is well established in the literature. Allen and Seaman (2014), in their eleventh annual report on the state of online learning in U.S. higher education, consistently found that a rising majority of chief academic officers rated the learning outcomes for online education ‘as good as or better’ than those for face-to-face instruction. In the nursing context,

there is a lack of empirical comparison studies between online, blended, and traditional face-to-face education (Carter, 2008; Lahti et al., 2014).

While there is no unified theory of online learning or consensus about the best approach to implementing online education, the Community of Inquiry (CoI) framework, described by Garrison, Anderson and Archer (2000), offers the potential for designing deep, meaningful, and interactive online education experiences in higher education. The degree of awareness and application of this framework in Australia is unknown. Moreover, growing attention has been directed to the CoI framework within general online education (Anagnostopoulos et al., 2005; Arnold & Ducate, 2006; Shea, 2006). The CoI framework is a collaborative constructivist approach that has been used to explain the findings of studies of online courses in disciplines such as business (Arbaugh & Hwang, 2006; Daspit & D'Souza, 2012), foreign languages (Arnold & Ducate, 2006; Dona et al., 2014), and information systems (Ling, 2007).

Hence, the collaborative nature of the nursing profession necessitates the need for a collaborative educational theory that can enhance student interaction. Also, the absence of the social aspects of education when delivering courses online demands an instructional framework that addresses feelings of isolation and the lack of personal interaction that online education faces.

Yet, studies that examine the CoI frameworks for online and blended learning in other disciplines, like nursing, are quite limited. In their literature review, Garrison and Arbaugh (2007) suggested that more collaboration between those familiar with the CoI framework and researchers from other disciplines interested in online education could be fruitful. This research aims to evaluate the suitability of the CoI framework for online/blended nursing education in Australia.

## 1.2 Theoretical Perspectives

### 1.2.1 Community of Inquiry

A recently developed theoretical framework for understanding online/blended learning approaches is the Community of Inquiry (CoI) framework developed by Garrison et al. (2000). This framework supports the education experience in computer-mediated communication and a computer conferencing environment (Garrison et al., 2000). The CoI theoretical framework is built on a collaborative constructivist model of teaching and learning that seeks to explain meaningful online education experiences by considering three overlapping presences: social, cognitive, and teaching (Garrison et al., 2000, p. 88).

According to Garrison et al. (2010a), the primary purpose of the CoI model is to introduce the best online communication media by using these three interdependent core elements to create an enhanced educational experience. The CoI framework consists of three overlapping and interdependent elements, as shown in Figure 1 below. These elements are cognitive presence, social presence, and teaching presence. The CoI model assumes that learning occurs within the community through the interaction of these three core elements (Garrison et al., 2000).

Cognitive presence is the extent to which learners are able to construct meaning through sustained communication and critical discourse. Moreover, cognitive presence is crucial in critical thinking, a necessary element of higher-level thinking and learning. Social presence, the second core part of the model, is the ability of students to project their personal characteristics into the community. Social presence supports cognitive presence through indirect facilitation of critical thinking carried out by the community of learners. Teaching presence is “the design, facilitation, and direction of cognitive and social processes for the purpose of realising personally meaningful and educationally worthwhile learning outcomes” (Anderson et al., 2001, p. 5). Teaching presence reflects the creation, integration, and facilitation of cognitive and social presence into the design of a course (Kanuka & Garrison, 2004).

A few years after the seminal work on CoI, Arbaugh et al. (2008) developed a 34-item survey tool that revolutionised the use of the framework. The survey tool increased the use of the framework while shifting the research about online education from the laborious content analysis of discussion transcripts to the learner survey tool. The tool is a "valid, reliable, and efficient measure of the dimensions" of the CoI framework for use in any course (Arbaugh et al., 2008, p. 133). Further details of the CoI model are mentioned in Chapter two.

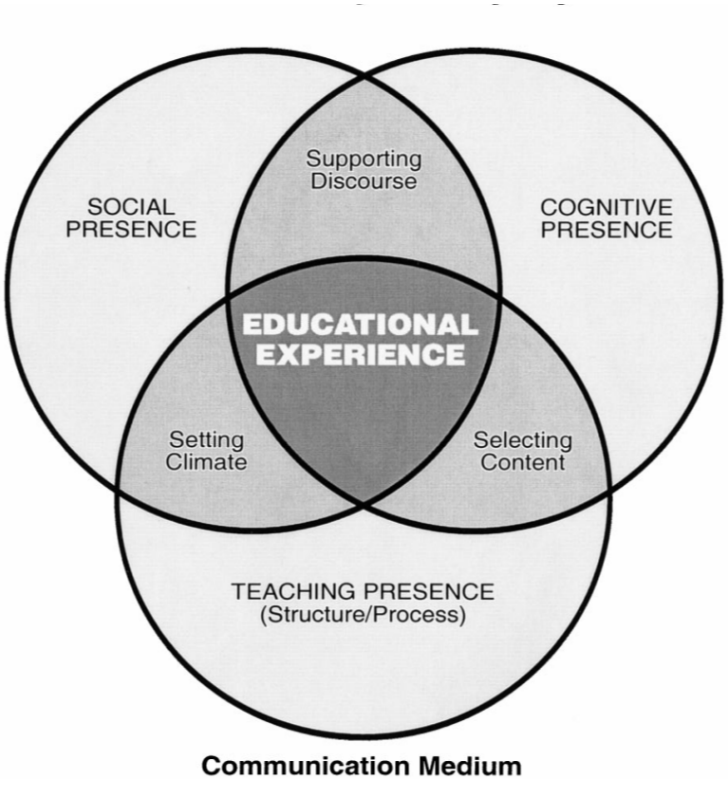


**Figure 1: CoI framework presences with permission to use from Garrison et al. (2000)**

## 1.3 Teaching in E-learning Modes

Effective online/blended learning practice is still in the discovery phase because these modes are relatively new. This is only true if we consider that blended learning emerges from understanding the relative strengths of face-to-face and online learning. However, before the Internet revolution, blending multiple resources and teaching methods, such as showing videos in face-to-face classes or using teleconference tutorials for external students, was considered blending learning (Redmond, 2011). Garrison and Vaughan (2008, p. 5) described

blended learning as “the thoughtful fusion of face-to-face oral communication and online written communication”. Such integration will optimally fuse the strengths of each learning mode to produce intended educational outcomes.

The literature has demonstrated increased interest in blended learning while describing it as the ‘new normal’ in higher education (Smith & Hill, 2019). For example, blended learning positively affects students’ learning outcomes and academic performance (Almasi & Zhu, 2020; Bernard et al., 2014) and students’ satisfaction (Lahti et al., 2014). The Department of Education and Training (2018) reported that digitization and blended learning increased the retention and completion rate of the students because of the suitability of this mode to their circumstances, such as work, family commitments and geographical location.

Blended learning strategies are recommended for allied health and nursing students in undergraduate, postgraduate, and continuing professional development because of their better learning outcomes than traditional teaching and learning strategies (Grimmer-Somers et al., 2011, p. 4). Therefore, research is required to investigate optimal ways of delivering blended learning for nursing students. The emphasis is on finding the best technique to design and evaluate the blended courses universities offer to higher education students. This research will investigate the suitability and useability of the CoI framework to guide the design and evaluation of online/blended courses for nursing students in Australia.

## 1.4 The Research Problem Statement

An increasing number of online courses in the health professions and nursing faculties are shifting toward online education. The adoption of e-learning may outpace the associated research to the extent that technological changes and implementations precede our understanding of how e-learning can support a quality educational experience (Garrison & Anderson 2003, p. 6). The literature also suggests a lack of rigorous research providing evidence to guide e-learning in higher education (Garrison, 2011). While nursing schools need to better understand the most suitable theoretical framework to design online courses, nurse

educators face challenges in meeting all the requirements in designing online courses for nursing students (Wingo et al., 2016).

Nurse educators play a significant role in preparing competent, knowledgeable, and skilled future graduate nurses that deliver quality patient and community care. The recent World Health Organization (2016) recommendations outlined a list of core competencies for nurse educators to provide high-quality nursing education. The competencies are (1) Theories and principles of adult learning, (2) Curriculum design and implementation, (3) Nursing practice, (4) Research and evidence, (5) Communication, collaboration, and partnership, (6) Ethical/ legal principles and professionalism, (7) Monitoring and evaluation, (8) Management, leadership, and advocacy. These competencies have been found lacking in the nurse educators practices (Benner et al., 2009b; Gardner, 2014; Lavoie et al., 2018), and some of the competencies are very challenging since the nurse educators are not trained formally as educators rather a content expert only (Mukhalalati & Taylor, 2019).

The lack of pedagogy knowledge, curriculum design and implementation, and evaluation may impact educators' roles and satisfaction (Arian et al., 2018) and retention in academia (Bullin, 2018). On the other hand, this lack of pedagogy knowledge among nurse educators can negatively affect students' engagement, retention and attrition, satisfaction, and outcomes (Lee et al., 2018; Redmond et al., 2018; Richardson et al., 2017).

Consequently, understanding the educator's role of pedagogy and technology in the context of course design and evaluation has become increasingly important. Shea and Bidjerano (2009) advised that designers of online courses and educational providers are often confused about how to integrate new technologies into the online learning environment in ways that will enrich student learning. To solve this problem, the founders of the CoI framework claimed that what is needed is a theoretical framework that offers education providers and instructional designers a tool for combining technology and pedagogy.

The CoI framework has been established to meet the gap between pedagogy, technology, and learners' needs at the tertiary level (Garrison et al., 2004; Garrison et al., 2000; Jackson et al., 2013; Shea & Bidjerano, 2009; Swan et al., 2009). This research proposes the CoI framework's potential to transform online education in Australia. While the CoI framework effectively promotes learning in a range of disciplines, there has been only limited research into the CoI framework in relation to nursing and health sciences education (Mills et al., 2016; Phillips et al., 2013). In Australia, the degree of knowledge and awareness of this framework is unknown. Even though healthcare courses have appeared incidentally in some of the research, only limited studies have been undertaken to explicitly examine the CoI model in the context of the nursing discipline (Carlon et al., 2012).

Furthermore, the nursing literature shows a lack of empirical studies on the use of the CoI framework to design and evaluate online nursing education. In the Australian literature, the CoI framework is almost non-existent, so there is an opportunity and a need to conduct research on the knowledge of education providers and the applicability of this framework for blended or online nursing education. Hence, this study will add to the academic exploration and literature in the area because the framework has not been previously used in a nursing undergraduate blended or online learning environment in Australia. Moreover, this research will be conducted in Australian universities rather than in North American universities, where most of the previous research has been undertaken. This study will provide an opportunity for the CoI theoretical framework to be examined in another context.

The CoI framework survey tool developed by Arbaugh et al. (2008) was designed to allow the students to evaluate their online courses. In contrast, this study will give the nurse educators a voice to evaluate the suitability of the CoI framework to online nursing education while exploring in-depth the factors that affect the adoption of this framework into online nursing education. Such exploration will add to the nursing literature regarding the use of the CoI framework.

## 1.5 Aims of the Study

The main aim of the study is to explore the knowledge and awareness of online nursing education providers and course designers in Australia about the CoI framework. This research will not only assist in improving the design of future online courses, thereby enhancing students' educational experiences and learning outcomes, but will also inform the future work of nursing educators and education designers and provide recommendations for the implementation of more interactive, engaging, and meaningful online learning strategies. Specifically, the aims of the study are:

1. To determine the extent of awareness, knowledge, and applicability of the CoI framework for online nursing education providers and course designers in Australia.

2. To evaluate the suitability of the CoI framework for online nursing education by identifying the factors that affect the adoption of the framework.

## 1.6 The Research Questions

A number of questions are addressed in this research.

### 1.6.1 Phase I questions (Quantitative)

1. What are the opinions of nursing educators [academics] on the applicability of the three core concepts of the CoI framework for blended or online nursing education in Australia?

2. What do blended/online nursing educators [academics] in Australian universities know about the CoI framework?

### 1.6.2 Phase II questions (Qualitative)

3. How do nursing educators (academics) use an educational theoretical framework and create a learning community in online/blended courses?

4. Is there an implicit relationship between the design/evaluation of blended or online courses and the constructs of the CoI framework?

5. What are the factors affecting the adoption of the CoI framework in Australian nursing education?

## 1.7 Research Design

This research was conducted under a naturalistic and pragmatic paradigm using a natural real-world setting without influence or manipulation. The pragmatic paradigm allows multiple methods, worldviews, notions, and different forms of data collection to be used. This privileging of multi-methods opens opportunities for using a mixed-methods approach. Therefore, an explanatory sequential mixed-methods approach (Creswell & Creswell, 2017) was used to better understand the awareness and knowledge of online nursing education providers and course designers about the CoI framework. This research explores the applicability of the CoI framework in current online nursing education in Australia. In addition, this project investigates whether the CoI framework is suitable for transforming online nursing education in terms of the design and evaluation of courses. The quantitative data was collected in Phase I, which was then used to build Phase II. The qualitative phase explained the findings and explored the issues and relationships in-depth. This project used the following two phases to collect the data:

### 1.7.1 Phase I: Current Knowledge and Awareness of the CoI Framework

This phase focused on the knowledge, awareness, and applicability of the CoI framework among nursing education providers and course designers in nursing schools in a number of Australian universities. This phase collected the data via a national online survey of nursing

educators in Australia. Full details of this phase can be found in Chapter Four. The data were analysed using descriptive statistics and shown in tables and graphs.

### 1.7.2 Phase II: Gaining an In-Depth Understanding of the Suitability of the CoI Framework to Online Nursing Education

This phase focused on an in-depth explanation and exploration of the findings from phase I. Data were collected using semi-structured interviews with nursing academics from three Australian universities. The data were analysed using deductive thematic analysis using the CoI framework coding template to understand the divergence and convergence of current nursing educators' practice with the core concepts of the CoI framework. The interview schedule development details are mentioned in Chapter Four, the methodology chapter.

## 1.8 Significance of the Study

The outcomes of this research study will make a significant contribution to the literature on the applicability and adoption factors of, and issues about, the use of the CoI framework in the design and evaluation of nursing courses. It will add to the academic literature in the field because the framework has not been previously used and examined in nursing schools. Furthermore, the idea of conducting this research in Australian universities rather than North American universities, where most of the previous research has been undertaken, will add further depth to the literature in the field by considering the CoI framework in the Australian online/blended learning context.

The current study has aimed to enrich the understanding of online/blended nursing academics by scrutinising the suitability and useability of this framework for blended nursing education in Australia. This research project is further distinguished by its focus on the problems of the framework, with a specific focus on the context of higher education and making genuine inquiries into the CoI framework developed by Garrison, Anderson and Archer in 2000. This research will assist nursing academics to improve the design of future online/blended courses

and will inform the future work of blended nursing education providers and course designers. Overall, the study will thereby influence the educational experiences of students and improve their learning outcomes. It will also provide recommendations for the implementation of more interactive, engaging, and meaningful blended learning strategies. Conclusions drawn from this study should also provide direction for future research.

This study will assist with improving blended nursing education practice in the higher education sector by investigating how technology and infrastructure can be used to promote educational experiences, communication, collaboration, and reflective and critical thinking. This will then contribute to a deeper understanding of the concepts that form the learners' educational experiences.

Finally, this research will contribute to the professional discourse at the local level within colleges of nursing and in the broader higher education community of nursing educators and course designers. Benefits to the broader community also exist because online/blended learning environments have rapidly emerged in various sectors of society.

## 1.9 Structure of the Thesis

This thesis is presented in eight chapters.

**Chapter one: Introduction** has introduced the background to the study and the research problem, and has provided a brief overview of the methodology and the organisation of the thesis. Finally, the key terms have been defined.

**Chapter two: E-learning and CoI framework** presented the background that assisted with the construction of the necessary theoretical foundation, and examined the areas of online learning, blended learning, and the CoI framework. In addition, the chapter has provided detail of the theoretical framework that guided the design of the methodology and informed the study findings.

**Chapter three: Literature review** presented a review of nursing literature that used the CoI framework from 2000 until September 2021 and demonstrated the research gap in the literature.

**Chapter four: Methodology and methods** described the rationale for using pragmatist philosophy and how this fits with the mixed-methods approach. The chapter also provided full detail of the research design.

**Chapter five: Phase I Quantitative findings** presented the findings from the online national survey. This chapter is presented as a published article in a peer-reviewed journal.

**Chapter six: Phase II Qualitative findings** presented the findings from the semi-structured survey. This chapter is presented as two published articles in a peer-reviewed journal.

**Chapter seven: Integration and discussion of metainferences** described the integration of the findings and the formation of the metainferences of the findings.

**Chapter eight: Conclusions, recommendations, and limitations** discussed the study outcomes and related the findings to the initial research questions. The chapter also discussed the future implications and limitations of the study.

## 1.10 Chapter Summary

This chapter has presented a summary of the entire thesis. It provided some contextual background, the research problem questions, the research design. It has also introduced the CoI framework and outlined the thesis chapters. The next chapter will provide a detailed background of the issues related to e-learning, define the most important terms used in the thesis and a detailed explanation of the CoI framework

# CHAPTER TWO: E-LEARNING AND COMMUNITY OF INQUIRY FRAMEWORK

## 2.1 Introduction

The previous chapter introduced the research background, the problem, the study aims, and the significance of the study. Also, it presented the research design and methodology and the structure of the whole thesis. This chapter provides a background to e-learning regarding its different types, issues, advantages, and disadvantages. The chapter also introduces the history, background, development, and significance of the Community of Inquiry (CoI) framework.

## 2.2 E-Learning in Higher Education

In the contemporary era, the rapid spread of mobile and 'smart' communication technologies such as iPhones, iPads, and tablets has created significant opportunities to deliver online learning in interactive synchronous and asynchronous modes. In addition to the new hardware technologies, many new software solutions and techniques have changed the shape of education as we know it. This variety of options has necessitated higher education institutions arranging more flexible access to learning opportunities. The literature is full of different terms to describe the learning medium and place of learning in higher education. The spectrum of different terms can vary from traditional face-to-face learning, on-campus learning, online learning, e-learning, blended or hybrid learning, digital learning, mobile learning, technology-facilitated or -enhanced learning, computer-mediated or conferencing learning, through to virtual learning and Massive Open Online Courses (MOOCs) (Kumar Basak et al., 2018; Sangrà et al., 2012).

Modern higher education has had difficulty distinguishing a clear delineation between these terms. The best way to describe them is to think of these different approaches as a spectrum, as shown in Figure 2, with one end being the traditional face-to-face on-campus teaching and learning, and the other end being the fully online, distance, off-campus teaching and learning.

Positioned between these two are all the modes mentioned above using different ratios of Information and Communications Technology (ICT). Despite the many different names, the common concept in this equation is the learning process itself. It is not easy to differentiate between some of these terms, especially if they involve using some online or telecommunications tools.


**Figure 2: Spectrum of learning and teaching approaches**

### 2.2.1 E-learning

E-learning involves the use of some interactive technology to deliver learning materials to participants. However, agreement on the term is inconsistent in the literature. The literature is full of different terms sometimes used interchangeably, making it difficult to agree on what it means (Moore et al., 2011). Billings (2002, p. 3) defined e-learning as: “the use of Internet learning tools such as online discussion, chat, texting, and email to support teaching and learning in an online community”. This definition mentioned the use of technologies to deliver the content of learning materials at any time and place. However, the definition described the medium and the technology used to deliver the content to facilitate access to learning material without considering the pedagogy. Sangrà et al. (2012) found a lack of consensus on a definition of e-learning in the literature and consequently conducted a Delphi survey of 33 experts from 16 countries, including Australia, to agree on a single definition. They concluded that:

> E-learning is an approach to teaching and learning, representing all or part of the educational model applied that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction and that facilitate the adoption of new ways of understanding and developing learning (Sangrà et al., 2012, p. 152).

The previous definitions implicitly assumed that adult learning via online media is similar to traditional education, with the only difference being the use of online technology as a medium to deliver the content. This assumption was contested by some scholars who defined e-learning in a more inclusive way, such as Garrison (2017, p. 2), who defined e-learning as "the utilisation of electronically mediated asynchronous and synchronous communication for the purpose of thinking and learning collaboratively". This definition included the medium, the modality, the purpose, and the pedagogy for what is assumed to be a quality online course. One reason for the variation in the definition could be due to the discipline that the author comes from. For example, Sangrà et al. (2012), in their Delphi survey, stated that e-learning results from the merging of different disciplines, such as computer science, communication technology, and pedagogy. Hence, the results of the Delphi survey found that authors with technological backgrounds shifted the definitions towards technology or access systems, while authors with an educational background geared their definitions towards a new educational paradigm and communication (Sangrà et al., 2012).

In conclusion, finding a unique definition that fits all the criteria of the best pedagogy, modality, and technology is difficult due to the dynamics of the new medium. Nonetheless, future research should focus on finding an online framework that achieves a quality e-learning educational experience for learners while enabling educators to design, deliver, and evaluate the courses. The two main presentations that comprise e-learning are online and blended learning (Garrison, 2017). The following sections will address the varieties of fully online education, the synchronous and asynchronous form, and blended learning.

#### *2.2.1.1 Fully Online Education*

Fully online education usually means courses delivered entirely online, meaning there are no physical or on-campus classes. According to Allen and Seaman (2010), most distance education is now delivered via fully online education. Furthermore, Allen and Seaman (2014) indicated that any courses considered fully online must have at least 80% of course content delivered online without face-to-face teaching. For this research, the term 'fully online' describes courses using no face-to-face content at all.

#### *2.2.1.2 Synchronous and Asynchronous Online Learning*

Asynchronous e-learning is a teaching method that uses online learning resources to facilitate information sharing outside the limitations of time and place among a community of learners (Mayadas, 2005). The community of learners may not be online at the same time. This is part of the e-learning definition 'anytime anyplace'. In reality, and because of the nature of asynchronous e-learning, many learners are attracted to the flexibility of this medium of study. For example, participants can easily access the online platform from any virtual place at a time that suits them best, and then download and share documents, comment on posted questions, ask for clarification, and send emails to their colleagues or instructors.

Furthermore, asynchronous e-learning allows the learner to schedule their work and family commitments accordingly. Asynchronous e-learning can be facilitated by email, discussion boards, and the posting of podcasts and videos among the community of learners. In addition to the flexibility of asynchronous e-learning, this learning mode allows learners to spend more time on tasks by thinking them through thoroughly and refining their contributions.

In contrast, synchronous e-learning is a mode of learning where all members of the community of learners are online simultaneously. This mode uses videoconferences, chats, and webinars (Web-based seminars), for example. The advantages of synchronous e-learning are the real-time ability to interact with other learners, ask questions, and add comments. Hrastinski (2008) stated that learners and teachers view synchronous e-learning as more social and less

frustrating, where questions get answered in real-time. In this regard, Claman (2015) conducted a quasi-experimental two-group post-test only study to assess whether web-based synchronous instruction using Multi-user Virtual World Environments (MUVEs) increased student engagement compared to traditional asynchronous learning methods. The sample consisted of 21 family nurse practitioner students who received instruction by either a synchronous or an asynchronous learning method. The results indicated that engagement scores were significantly higher for the synchronous than for the asynchronous learning platform. The sample size of this study was small, which does affect the generalisability of the results. Nevertheless, it appears that individuals learn differently. For example, Hrastinski (2008) analysed asynchronous and synchronous online seminars followed by interviews from the two groups of students. The research questions consisted of when, why, and how to use these two modes of delivery. The findings revealed that both modes of delivery (synchronous and asynchronous) had no significant differences in the outcomes but that the educator needs to use the technology according to the learners' needs. Table 1 below provides suggestions on what, when, and how to use these two modes.

**Table 1: When, why and how to synchronous vs asynchronous learning activities adapted from Hrastinski (2008)**

| | Asynchronous e-learning | Synchronous e-learning |
|---|---|---|
| **When?** | • Reflecting on complex issues<br>• When synchronous meetings cannot be scheduled because of work, family, and other commitments. | • Discussing less complex issues<br>• Getting acquainted<br>• Planning tasks |
| **Why?** | • Students have more time to reflect because the sender does not expect an immediate answer. | • Students become more committed and motivated because a quick response is expected. |
| **How?** | • Using asynchronous means such as email, discussion boards, and blogs. | • Using synchronous means such as video conferencing, instant messaging and chat, and complementing these with face-to-face meetings. |
| **Examples** | • Students expected to reflect individually on course topics may be asked to maintain a blog<br>• Students expected to share reflections regarding course topics and critically assess their peers' ideas may be asked to participate in online discussions on a discussion board. | • Students expected to work in groups may be advised to use instant messaging as support, forgetting to know each other, exchanging ideas, and planning tasks.<br>• A teacher who wants to present concepts from the literature in a simplified way might give an online lecture by video conference. |

It is important to understand the students' learning needs according to the planned tasks from the above table. However, the synchronous teaching mode has technical challenges when the number of enrolled students in the virtual class is large. Multiple varied devices, Internet connectivity, and different platforms in large classes can sometimes be problematic. Grimmer-Somers et al. (2011) conducted a systematic review followed by interviews with experienced e-learning academics and end-users, concluding that teaching synchronously at a distance may require additional technical support, different media platforms, and tutor support compared to teaching asynchronously at a distance. The critical message in this regard is that the role of the educator is shifting, and understanding how individual students learn via the online or blended mode is of increasing importance.

#### *2.2.1.3 Blended Learning and Teaching*

Blended learning is the fusion of online and face-to-face content in different proportions. Therefore, the study of blended learning necessitates and includes the study of the online mode of delivery. However, the definition of blended learning in the literature varies between scholars, with some claiming that there is no definition of blended learning, such as Nortvig et al. (2018), whereas other authors describe it as hybrid (Charbonneau-Gowdy, 2018) or as a mix between face-to-face and the use of technology (Uziak et al., 2018), or consider it as an ingredient (Banditvilai, 2016), or a strategy or pedagogy (Soeiro et al., 2012). All these definitions conclude that blended learning is an "umbrella term" used to describe the combinations of different instructional methods, pedagogical approaches and technologies (Hrastinski, 2019, p. 568).

The Merriam-Webster online dictionary defines the word 'blend' as "to produce a harmonious effect" (blend. 2021. In Merriam-Webster.com, 2021). This harmonious effect cannot be achieved by simply combining the two modes but by capturing the advantages of both and producing a worthwhile educational experience where both modes are a vital part of the learning process. Technically, blended learning combines any number of learning opportunities, including e-learning or other forms of distance education (videos and voice recordings, telephone coaching etc.), traditional face-to-face teaching and tutorials, individual coaching, peer support groups, and regular feedback (Grimmer-Somers et al., 2011).

The literature demonstrated that students and educators were satisfied with the blended learning mode (Mestan, 2019; Vaughan & Garrison, 2006). This was confirmed in a survey conducted by Allen et al. (2007), which found that higher education institutions have been investing in fully online and blended courses and programs because of the preferences and openness of consumers towards both modes of delivery.

Using Internet technology increases flexibility in the delivery of higher education courses. These flexible course offerings range from traditional, web-facilitated, and blended (or hybrid)

to fully online courses. In the IBISWorld Industry Report X0008 “Online Education in Australia”, Caldwell (2020) stated that over 80% of the content of a course or unit has to be delivered online for the teaching institution to be considered an online provider. Allen and Seaman (2014) confirmed this in their eleventh annual report on the state of online learning in U.S. higher education, with fully online courses needing to have at least 80% of their content being delivered online. In comparison, the authors considered any course with no content delivered through online technology as a traditional face-to-face course. Furthermore, a course that delivers less than 29% of its content through online technology was considered to be a web-facilitated course. The most common proportion currently used in higher education is hybrid/blended learning, in which a substantial proportion from 30-79% of the content is online (see Table 2).

**Table 2. Course classification according to the proportion of content delivered online. Adapted from (Allen & Seaman, 2014)**

| Proportion of Content Delivered Online | Type of Course | Typical Description |
|---|---|---|
| **0%** | Traditional | A course where no online technology is used. Content is delivered in writing or orally. |
| **1 to 29%** | Web-Facilitated | A course that uses web-based technology to facilitate what is essentially a face-to-face course. May use a course management system (CMS) or web pages to post the syllabus and assignments. |
| **30 to 79%** | Blended/Hybrid | A course that blends online and face-to-face delivery. A substantial proportion of the content is delivered online, typically uses online discussions, and typically has a reduced number of face-to-face meetings. |
| **80+%** | Fully Online | A course where most or all the content is delivered online. Typically has no face-to-face meetings. |

Blended learning courses are predicted to form most higher education modes of delivery in the near future (McKenna et al., 2020). Blended learning is considered as the ‘best of both worlds’ approach compared to fully online courses and face-to-face (Allen et al., 2007). This

fusion allows for the integration of the best of each approach. The online part offers content, resources, flexibility, more time for reflection and preparation, discussion and intense participation. While the face-face part offers the opportunity to build the learning community, build hands-on skills, socialise and get direct feedback (McKenna et al., 2020). Thus, blended learning may improve student engagement, performance, create a positive environment only if the design of the blended course is built on a solid understanding of a theoretical framework that can achieve the maximum benefit of each delivery mode (Baragash & Al-Samarraie, 2018)

Garrison and Vaughan (2008) argued that in order to achieve higher-order learning, the approach to education should be more interactive, collaborative, and engaging. Earlier, Palloff and Pratt (2007) explored the idea of attaining higher-order learning outcomes through a focus on interactive and collaborative learning. According to Garrison and Vaughan (2008), traditional face-to-face teaching has been viewed as a poor approach to achieving the goals of the education experience. They expected that advances in the Internet and communication technologies would be useful for connecting learners. Furthermore, they demanded a shift in thinking from either face-to-face or fully online learning to integrating both in the new blended learning approach.

According to Garrison and Vaughan (2008, p. 13), blended learning frameworks need to "integrate thought and action and provide an understanding for the importance of sustained critical discourse and private reflection". This concept is embedded in the thinking of the individuals in a group who together engage in purposeful critical discourse and reflection to develop learning and understanding by using computer-mediated tools (Garrison et al., 2000). In other words, the online component of blended learning (the use of discussion forums, wikis, and blogs, for example) will allow for better connections among learners to engage in purposeful and open critical discourse. According to Garrison et al. (2000), such connection and engagement are possible through the CoI framework. As described in Chapter One, and

as will be discussed further in this chapter, the CoI framework is a promising model that can be used to design and evaluate blended courses to achieve critical discourse and reflection.

In a qualitative study conducted to explore students' perceptions of blended learning modules delivered in a Continuing Professional Development (CPD) health care context in the U.K., Glogowska et al. (2011) interviewed 16 qualified nurses and one allied health professional who had experienced the modules. The participants discussed the importance of what material should be online versus face-to-face and how to balance the two components. Finally, the researchers recommended that a CoI be built in individual modules to provide students with personal support and intellectual facilitation.

Recently, the evidence from the literature has been more prominent in supporting the claim of Garrison and Vaughan (2008) that blended learning is the best mode to design and evaluate allied health education. For example, Grimmer-Somers et al. (2011) conducted a four-stage project that included a systematic review followed by validation of the results by an academic expert in e-learning to find best practices in e-learning for allied health clinical education and training. Among their guiding principles and recommendations was that blended learning strategies should be applied where possible for allied health undergraduate, postgraduate, and continuing professional development courses. Furthermore, they concluded that the learning outcomes were considered better than those from traditional teaching and learning strategies. Indeed, despite that ‘learning style’ theory has been debunked recently (Furey, 2020), the ability of blended learning to offer more ranges of learning activities that suits different groups.

In conclusion, blended learning appears to be gaining more attention than fully online learning. The fusion of the advantages of the face-to-face (the social aspects and the feeling of belonging) with the advantages of the online medium (the collaboration and connection among and between students and instructors) makes blended learning the preferred choice for all stakeholders. Even though more specific empirical evidence is needed to support blended

learning in nursing, the current outcome of the blended learning research provides optimism for health care education.

### 2.2.2 Advantages and Disadvantages of E-Learning Education

Even though the advantages of online/blended education have been well established in the literature, opinions are still mixed about the benefits for higher education. It is important to note that each stakeholder in the teaching process identifies the advantages and disadvantages according to their perceptions of online/blended learning. The perceptions of learners are also different from the perceptions of educators and education providers.

#### *2.2.2.1 Advantages and Disadvantages of E-learning Education as Perceived by Learners:*

E-learning should be used with a good understanding of learners' needs (Lahti et al., 2014; Ullrich et al., 2008). The literature shows numerous advantages of online education for learners, with the most common advantages being:

1. Ease of access and flexibility allows students to undertake their studies at a time and place they prefer (Al-Shorbaji et al., 2015; Bains et al., 2011; Caldwell, 2021). For example, in asynchronous online learning, students can access online materials at any time, while synchronous online learning allows for real-time interaction between students and the instructor.

2. Learners from remote geographical locations can save on travel and accommodation costs. E-learning may also enhance access to education in rural settings, developing nations, or other remote areas (Stone et al., 2019).

3. E-learning may also result in improved student-teacher and student-student collaboration and interaction (Stanley et al., 2018) to form a community of learners (Garrison et al., 2000). Also, online/blended education may result in enriched student-teacher contact and student-student critical discourse and intense participation via

discussion boards, email, chat, and VoiceThread technology (Merriam & Hobba-Glose, 2021).

4. E-learning education may enhance “the students’ sense of being connected to the college, reducing their sense of isolation and anxiety” (Flowers et al., 2010, p. 4). The “sense of belonging”, as described in the literature, can improve student attainment, increase learner satisfaction, and reduce attrition rates (Garrison, 2007; Peacock & Cowan, 2019).

5. E-learning education increases student satisfaction (Li et al., 2019). In a meta-analysis of empirical studies of online learning for undergraduate health professional education, Al-Shorbaji et al. (2015) found that 56% of the studies found higher satisfaction rates among those exposed to online methods compared to 22% among those exposed to traditional learning methods, while 11% found no difference between the two methods.

6. The flexibility of the learner to repeat, listen or watch the educational materials [either videos, audios, animations or text] multiple times (Bains et al., 2011). This is beneficial to the international students who study in another language and need to repeat the material to catch complex phrases.

**The disadvantages of e-learning education as perceived by learners:**

Despite the aforementioned advantages of online education, there are also a number of disadvantages from the learner’s perspective:

1. Students and teachers alike must be familiar with the technology (Al-Shorbaji et al., 2015; Gerdprasert et al., 2011; Goldsworthy et al., 2006).

2. Students require access to the necessary hardware and software and a reliable Internet connection. Furthermore, some Internet packages require sufficient speed for interactive visual and animated materials (Jaggars, 2011; Lu et al., 2009).

3. The loss of social interaction. A number of articles mentioned the lack of student-teacher interaction and tutor support (Bains et al., 2011; Cantarero-Villanueva et al., 2012; Gerdprasert et al., 2011; Jaggars, 2011), while others discussed the absence of the social aspects of face-to-face learning. For example, Stodel et al. (2006) conducted a qualitative study to identify learners' perceptions of what was missing from online learning. The analysis revealed five themes: robustness of online dialogue, spontaneity and improvisation, perceiving and being perceived by the other, getting to know others, and learning to be an online learner. Other disadvantages included the absence of non-verbal cues, lack of spontaneity in discussion forums, the absence of emotion, and the lack of the energy found in the face-to-face mode (Stodel et al., 2006). Whereas some in this study occasionally felt that the forums were used as a means of 'reporting in' rather than as a medium for discussion, others mentioned the frustrations associated with having to wait for a response to a question from other learners, especially if the information that was returned was not what the learners wanted.

It is important to keep in mind that these disadvantages were correct at the time of the above study; however, communications technologies and software solutions have been improving rapidly in order to overcome the shortcomings of the online environment. The use of video conferencing, VoiceThread ™, emojis, and other technology has compensated to some degree the missing elements of online learning (Delmas, 2017; Feldman et al., 2021).

Nonetheless, the above study emphasised the importance of the social aspects that the learners are missing in online courses. In conclusion, it could be that some students experience some discomfort with education being solely online; however, this should lead to more research and empirical evidence in the area of social presence in the online medium.

#### *2.2.2.2 Advantages and Disadvantages of E-Learning Education as Perceived by Educators and Education Providers:*

Although the literature shows mixed opinions regarding the benefits of online learning and teaching, empirical evidence on how to use this technology effectively is lacking (Kim & Bonk, 2006). The benefits of online learning and teaching as perceived by educational providers are as follows:

1. E-learning promotes the connection of distributed groups of learners and individuals (Meredith & Newton, 2003).

2. E-learning can be cost-effective in the long term as it is independent of teacher presence and allows easy updating and sharing of programs (Al-Shorbaji et al., 2015; Bains et al., 2011).

3. E-learning increases learners' retention rates and leads to greater student participation (Palloff & Pratt, 2010).

4. E-learning increases flexibility for instructors, where tutoring can be undertaken at any time and from anywhere, while the materials can be easily updated and edited (Al-Shorbaji et al., 2015; Clark-Ibáñez & Scott, 2008).

5. E-learning can reduce the time spent on setting up laboratory equipment and on the repetition of demonstrating by posting a video of the procedure online (Al-Shorbaji et al., 2015).

6. E-learning allows more students to undertake the sessions (Al-Shorbaji et al., 2015).

7. E-learning education leads to higher levels of motivation of teaching staff, which provides greater professional and economic gains (Bawa, 2016).

8. E-learning can improve student assessments (McDonald et al., 2018), while analytical data collection can inform the design of the learning and provide students with individualised learning pathways.

In contrast, there are a number of disadvantages of online education for education providers mentioned in the literature. One study suggested that the development of e-learning resources was expensive, and some authors considered it time-consuming (Phadtare et al., 2009). This view has no solid economic evidence to support the claim of this study. One of the disadvantages of online education is a sense of isolation between students and instructors, leading to higher drop-out rates (Jaggars, 2011). In addition, Grimmer-Somers et al. (2011) stressed that care should be taken when using e-learning to teach and assess high-level clinical skills, especially if competency needs to be demonstrated. While the various advantages and disadvantages of these methods have been discussed in the literature, a full discussion is beyond the scope of this work.

The disadvantages of online education need to guide educators and curriculum designers to focus on appropriate instructional design that considers these disadvantages. Course and program design need to address the noticeable lack of social aspects in online education to avoid isolation and enhance belonging. In general, poorly designed learning activities and courses often result in ineffective or disappointing educational experiences (Akyol et al., 2009a). The disadvantages of fully online education, such as isolation, missing the energy and emotions of the face-to-face mode, and the lack of spontaneity of fully online courses, can be avoided by using the blended mode.

### 2.2.3 Online, Blended and Traditional Face-to-Face Learning Comparison

E-learning appears to be as effective as traditional instructor-led methods such as lectures (Faulconer et al., 2018). Russell (1999) claimed in a comparative analysis that traditional face-to-face learning realised no differences in outcomes, satisfaction levels, and grade comparisons compared to technologically-mediated instruction at the time of writing. Russell

(1999) indicated that the selection of media had little to do with learner outcomes. This assumption lacked empirical evidence at the time of the published article. In the contemporary era, with e-learning changing the face of education, such assumptions need to be supported by rigorous evidence, and in a range of disciplines.

However, there is a lack of empirical comparison studies of online, blended, and traditional face-to-face teaching in the nursing context. For example, Lahti et al. (2014), in their systematic review and meta-analysis of the impact of e-learning on knowledge, skills, and satisfaction among nurses and nursing students compared to traditional education methods, found that there was a lack of systematically conducted RCT studies comparing the effects of e-learning and traditional learning methods in nursing education. The review included 11 RCTs covering a total of 2,491 nurses and student nurses, and found that nine studies had a primary outcome measure of enhanced knowledge, while two had nursing skills as primary outcomes. The most important finding of this review was that there was no difference between e-learning and traditional learning. This finding was confirmed by Carter (2008), who conducted mixed-methods, quasi-experimental research to measure critical thinking dispositions of 84 post-RN (post-diploma) nurses. The study measured critical thinking disposition using the California Critical Thinking Disposition Inventory (CCTDI) before and after the participants enrolled in web-based courses. The findings revealed no statistically significant increase in the participants' measures of critical thinking dispositions as a function of online educational involvement. However, e-learning can offer an alternative method of education which has an impact on student satisfaction, interaction, engagement, and knowledge levels.

Nevertheless, a number of articles concluded that online learning has a positive impact on student outcomes. For example, Means et al. (2009) conducted a meta-analysis of empirical studies commissioned by the U.S. Department of Education to compare online and face-to-face learning, which revealed that students who took part, or all, of their classes, online outperformed colleagues who took solely face-to-face classes. The authors of this study reported that their findings held across variations in students, institutions, implementation

models, and disciplines. Other literature praised web-based learning as an excellent medium for increasing knowledge and reducing the stress levels of nursing students in the clinical setting. Gerdprasert et al. (2011, p. 533) conducted a randomised controlled trial to measure the effects of a web-based learning unit on knowledge, psychomotor skills, and stress levels of nursing students in a clinical situation. Two groups received intrapartum nursing care units. The experimental group was supplemented with the web-based unit on intrapartum nursing care, while the control group received the unit via traditional face-to-face learning. The results showed that the students in the experimental group had significantly higher scores for conceptual knowledge and performance skills. The students also had significantly “lower scores in ignorance – related stress (stress due to deficiency of knowledge), compared to those of the control group”. The students who took the supplemented web-based course showed strongly positive attitudes towards the new learning method.

The evidence supporting whether online education for undergraduate student nurses is better, worse, or equivalent to face-to-face education is still being gathered; however, it appears that a combination of both has become accepted as the most effective approach. Bains et al. (2011) conducted a randomised controlled trial on fourth-year undergraduate dental students to compare e-learning (E.L.), face-to-face learning (F2FL), and blended learning (B.L.) with respect to their effectiveness and student attitudes towards them. The trial also evaluated the effects of the order in which blended learning components (E.L. and F2FL) were delivered. The study showed that students were generally positive about all three methods, but B.L. was the most and F2FL the least accepted, while E.L. was the least preferred. These results suggest that B.L. was more likely than F2FL or E.L. alone to be effective and accepted when delivering education to undergraduate dental students (Bains et al., 2011).

Furthermore, in her thesis, Terry (2015) developed, implemented, and evaluated an online IV pump emulator displayed on the actual IV pumps used in on-campus nursing laboratories, with the specific aim of evaluating students' learning outcomes along with their perceptions of device use. The study divided the participants into online-only, on-campus only, and online +

on-campus user groups. The study found no significant differences in learning outcomes between the online-only and the on-campus only groups, but the study showed better learning outcomes among the combined group who trained with both forms of IV pumps when compared to the online-only and on-campus only groups.

On the other hand, Feng et al. (2013) conducted a systematic review and meta-analysis of 14 quasi-RCT studies to measure the effectiveness of situated e-learning on medical and nursing education. Each of the studies included in the review had an intervention of an e-learning program that involved the design of an interactive computer-assisted program to place learners in specific situated contexts, such as simulation situations, scenarios, or case materials. The conclusion of the review found that the effects of situated e-learning on the improvement of cognitive ability were limited compared to traditional learning. Situated e-learning may be a helpful adjunct to traditional learning for medical and nursing students, but does not appear to have any benefit over traditional learning methods for practicing clinicians.

In summary, the literature comparing learning outcomes for blended, online, and face-to-face learning is limited, with few high-quality empirical studies. This may be largely because of the difficulties with implementing controlled studies when so many variables are present in the education setting. Consequently, there is insufficient evidence to support one approach over another for achieving learning outcomes. However, an increasing body of evidence suggests that online or web-based learning for nurses can be as beneficial as traditional face-to-face education, or even better in relation to knowledge, skills, and critical thinking dispositions. Furthermore, there is considerable literature that supports the benefits of the combination of both online and face-to-face education for better outcomes and student satisfaction and retention. When considered in the context of rapidly changing technology and the substantial and growing influence of the Internet and the Internet of Things (IoT), online and face-to-face comparisons may be almost obsolete. Since almost all students use online technologies, online and face-to-face (on-campus) distinctions are fading (Norton & Cherastidtham 2014). Blended learning approaches are so pervasive that the more relevant question may be, “what

is the optimal way to provide blended learning opportunities?" This is particularly relevant as nearly all universities provide online content. In addition, improved video-conferencing opportunities are now moving e-learning closer to face-to-face teaching. This technological blurring of boundaries between online, blended, and face-to-face made the analyses of literature a complex task, mainly as teaching methods are not always clearly defined in the literature. To illustrate this overall complexity with an example, if a blended approach is found to be more effective, it may be challenging to ascertain whether this is due to an optimal mix of face-to-face with online education, or because of good discussion forums, or a multitude of other variables. While the lack of high-quality empirical research evidence provides strong justification for further investigation, such investigation must not simply add to the plethora of medium quality self-evaluation studies.

### 2.2.4 The New Role of The Educator

Regardless of whether the delivery mode is face-to-face, fully online, distance, or blended learning, it is evident that the roles of the teachers and students are changing. The shift from teacher-centred learning to more student-centred learning creates a challenge for educators. While learners are driven by rapidly improving technology, teachers become a 'mediator and motivator' of student learning (McLoughlin & Luca, 2001). Moreover, teachers in online education are shifting from "sage on the stage to the guide on the side" (Jones, 2006, p. 16). Such a complete shift reshapes the new role of online or blended faculty teaching (Cleveland-Innes, 2012). Some educators mistakenly consider that the online classroom is different from traditional education (Palloff & Pratt, 2007). Others see the use of information and communications technology (ICT) in education as a significant challenge and shift away from their traditional way of teaching and learning (Russell, 2018). This changing of roles poses a challenge to novice Australian online educators, particularly if accompanied by low levels of technical, instructional, and pedagogical support by the institution (Parsons et al., 2012).

There appears to be a universal misalignment between the broad availability of technological tools and their actual use to foster new pedagogical practices (Stewart & Bower, 2019). Also,

the knowledge of nursing educators in pedagogy and evidence-based teaching practices is lacking. This deficit is due to the advanced academic preparation of nursing educators in the clinical space, rather than in pedagogical and learning theories and knowledge on how to teach (Booth et al., 2016). The role of nursing educators includes two parts, the content knowledge of the clinical practice role and the teaching role. Nursing and education are different disciplines. Without preparation in pedagogical and teaching expertise, the nursing educator's role will be challenging (Booth et al., 2016). This was confirmed by Jackson et al. (2011, p. 342), who argued that "expertise in the theory and practice of nursing are, in themselves, no longer seen as being enough to teach nursing within the university sector". Nursing educators' roles in becoming content experts, researchers, educators, instructional designers, and online education experts is evidence of these changing roles. For example, the instructional design knowledge for designing and evaluating courses is one of the new roles that nursing educators need to master.

An appropriate instructional design based on a pedagogical framework is vital to the quality and usefulness of blended learning. Instructional design is defined as "a systematic process employed to develop education and training programs consistently and reliably" (Reiser & Dempsey, 2007). The core theme of designing a blended learning course is to make the acquisition of knowledge and skills more effective and attractive. Even though online learning allows for students to be anywhere at any time, the emphasis is on how the content has been designed to encourage learner engagement to learn faster and gain more profound levels of understanding. While online learning uses Web 2.0 technology tools to deliver materials for students, these tools are simply vehicles that deliver instructions but do not themselves affect student achievement. It is the instructional strategy rather than the technology that influences the quality of learning (Anderson & Elloumi, 2004).

The majority of faculty members who teach in higher education as subject matter experts lack formal training in instructional design (Ellaway & Masters, 2008). There is a gap between what they know as experts in their field and how to use this knowledge in course design to create

learning materials (Khalil & Elkhider, 2016). Levinson (2010) explored whether medical educators were guided by instructional design research evidence when creating educational events and curricula. He concluded that despite there being many exceptional educators, many medical educators lacked the time, motivation, and the opportunity to improve their proficiency in applying instructional design knowledge. Shea and Bidjerano (2009) argued that what is missing from integrating technology and pedagogy is a conceptual framework for the instructional design of materials. The use of an educational framework in designing courses allows for a systematic evaluation of the courses. The concept of instructional design is the core of teaching presence in the CoI framework and will be discussed further below.

### 2.2.5 Evaluation Of Online Education

Over the past two decades, the higher education sector has moved to online, web-based, and blended learning in addition to traditional face-to-face learning. Schools of nursing have been no exception to this trend. Nevertheless, this rush to compete in the education market has posed a number of questions about the quality of these online programs (Avery et al., 2008). In their review, Horne and Sandmann (2012) explored the extent to which schools of nursing systematically evaluated their programs beyond the course level. They claimed that systematic program evaluations of online education in the literature are limited.

Also, the quality of the online courses needs a valid evaluation tool. In this regard, the Sloan consortium created a framework of five categories -the “five pillars” for assessing online quality learning (Moore & Moore, 2005). The framework assesses five aspects of online courses (learning effectiveness, scale (cost), access, student satisfaction, and academic satisfaction). Another widely used rubric for the quality of the online course is “Quality Matters”. Quality maters consist of eight general standards that are driven by academics in a peer-review process. Despite online learning quality rubrics, the empirical evidence establishing a clear link between specific aspects of course quality and student outcomes is scarce in the literature (Jaggars & Xu, 2013).

The evaluation process is described by Fitzpatrick et al. (2011) as an organized description of a subject's merit, worth and significance, using criteria governed by a set of standards. The merit, value, and significance of an education program need to be assessed in relation to such standards and criteria. The aim of evaluation varies according to the stakeholder group and educational needs. These may include: (a) potential improvement of a course or program; (b) explore the efficacy of an evaluation instrument; (c) identify the most important element of the online nursing course (Avery et al., 2008); (d) justification of investment; (e) measurement of quality; and (f) informing decision-making (Horne & Sandmann, 2012).

The evaluation of online higher education can take many forms. The summative evaluation focuses on the information used to decide whether to continue or terminate a program. Formative evaluation focuses on making improvements to assist in the early phases of program development (Horne & Sandmann, 2012). In general, the literature is not clear about naming the type of review according to the above classification. Jaggars and Xu (2013) presented four main types of literature regarding online course quality: (1) practitioner-oriented literature, such as theory-based frameworks; (2) surveys, either student' or instructors' opinions about the quality of an online course; (3) controlled studies, such as studies of the relationship between various aspects of online learning and student outcomes; and (4) course quality rubrics. Nevertheless, online nursing education needs an evaluation methodology based on a theoretical framework to assist in applying systematic and comprehensive evaluation methods.

### 2.2.6 Engagement and Interaction

Teaching online requires faculty to use approaches that vary from those used in face-to-face teaching spaces. Nursing research needs to investigate the characteristics of online education environments that facilitate student engagement and interaction to yield a worthwhile educational experience. In this regard, the literature associates the engagement and retention of students with the student's relationship with faculty members and their peers (Garrison et

al., 2000). In higher education, student engagement has a significant influence on student outcomes, including the successful completion of studies (Redmond et al., 2018), mainly if accompanied by instructor guidance and support (Gillham, 2002)

Moreover, Pascarella et al. (2005) noted that good student-faculty interaction promotes student learning. This conclusion was confirmed by Jaggars and Xu (2013), who conducted mixed-methods research to study 35 online courses with 678 students who had completed at least one of the courses, followed by in-depth interviews with 24 instructors and 47 students. The quantitative results showed that interpersonal interaction within a course related positively and significantly to student grades. This result was then confirmed by the qualitative data based on course observations and interviews, suggesting that regular and real student-instructor interaction formed an online atmosphere that inspired students to enjoy the course and accomplish better outcomes.

Ellaway and Masters (2008) looked at e-learning in healthcare education and found that online learning is not merely a place to deposit electronic materials to students via the Internet and is instead a pedagogical approach that aims to be flexible, engaging, and learner-centred, and most importantly, encourages interaction, collaboration, and communication among the community of learners.

In online/blended nursing education, the level of genuine interaction among students was inadequate despite using online communication tools (email, threaded discussions, synchronous chat) (Avery et al., 2008). The question arises, can online/blended learning for nurses promote genuine engagement and interaction between students-students, instructors-students, and students-faculty and the content?

According to Posey et al. (2014), blended learning courses for nurses should use new educational technologies to appraise students' critical thinking, clinical judgement, problem-solving skills, and diagnostic reasoning. The literature showed that Web 2.0 tools, including but not limited to social networking, podcasting, media sharing, Wikis, blogs, etc., and

enhanced by interactive problem-solving, case demonstrations, and quizzes with immediate feedback, have the potential to enhance student engagement and interaction in fully online and blended nursing courses (Eales-Reynolds et al., 2012; Grassley & Bartoletti, 2009; Grimmer-Somers et al., 2011). Grimmer-Somers et al. (2011) recommended in their review that active learning approaches should be used as much as possible for all allied health students, regardless of the learning environment.

In their case study, Posey et al. (2014) concluded that the CoI framework ensures that asynchronous and synchronous discussion, collaborative team projects, and collaboration supported by innovative Web 2.0 tools foster engagement and socialisation and enhance problem-solving skills for nurse practitioner education. Also, Vaughan and Garrison (2006) found in their study that participating students rated an increase in the quantity and quality of interaction between students and faculty using the CoI framework design approach. In his literature review on the relationship between engagement, interaction, and CoI presence, Hoskins (2012) found that the quality of interaction and degree of engagement was the central theme in analysing student satisfaction and retention in online courses. Furthermore, Hoskins (2012) concluded that the CoI framework involves overlapping spheres of student-content interaction, teacher-student interaction, and student-student interaction, with the maximum educational experience being found in the centre of the overlaps.

An excellent example of Web 2.0 tools that enhance interaction is discussion boards. Smith et al. (2009) interviewed seven clinical nurse instructors and two instructional designers who had taught, or were teaching, one or more online classes, or were involved in the design of online classes within colleges of nursing at major research universities. Discussion boards were mentioned by most of the participants as one of the most effective methods of assessing students. They concluded that discussion boards allowed students to interact with each other on the forum and, later, reflect on their classroom experiences. However, this raises the question of whether it is the use of a particular delivery tool or the design of the instruction that advances learning.

### 2.2.7 Online Nursing Education

Brandon and All (2010) called for transformation in nursing education. They claimed that nursing programs were struggling to accommodate the changing needs of the health care environment and required changes to how students were being taught. They argued that nursing faculty had a duty to highlight how nursing students become learners who engage in reflective practice, self-critique, and self-paced while constructing information, thinking critically, and linking different concepts. Therefore, it is important to choose a suitable educational and theoretical framework to build nursing education curricula to serve this purpose (Khalil & Elkhider, 2016). As critical thinking and evidence-based practice are considered desirable educational outcomes in higher education, particularly in clinical professional topics such as nursing, the curriculum design should consider the enhancement of critical thinking outcomes. Brandon and All (2010) stated that the ideal clinical setting is one in which nursing students learn concepts more than content.

The nursing profession is a collaborative one; therefore, teaching in nursing should enhance the idea of collaborative learning. Brandon and All (2010) suggested using constructivist learning theory to improve critical thinking skills and adapt to changes in evidence-based practice in nursing programs. Also, Benner et al. (2009a) urged nursing educators to revise overused behaviourist pedagogies and employ constructivist pedagogies more often.

In constructivist learning theory, the learner experiences new information by reflecting on it and then merging it with their previous experience to construct their own knowledge and understanding of the world. In the nursing context, the nursing student will gather information, analyse it critically, evaluate it experientially, and then develop a new framework by merging it with their previous experiences.

The above sections have discussed the issues around online/blended learning. There is a need for a valid implicit theoretical framework to design and evaluate online/blended nursing education. The collaborative nature of the nursing profession necessitates the need for a

collaborative educational theory that can enhance student interaction. Also, the absence of the social aspects of education when delivering courses online demands an instructional framework that addresses feelings of isolation and the lack of personal interaction that online education faces.

Social constructivism is a collaborative learning theory that focuses on individual understanding while interacting and socialising with other learning community members (Castellanos-Reyes, 2020). Using an educational theoretical framework to design courses will facilitate the evaluation of the courses, and therefore, improvements to what is not working for the students. With the educators' role changing to become an expert in design and evaluation, learning theories will effectively facilitate the use of their content knowledge. There is a need for an instructional design framework and a theoretical framework that take advantage of the online benefits and consider students' satisfaction and needs to achieve better educational outcomes.

E-learning technology enhances the engagement of participants in open communication to produce critical discourse and reflection within the learning community. The essence of social constructivism is that humans never learn in isolation without the surrounding environment (Garrison, 2017). As a consequence, a significant focus of this thesis is on investigating the applicability of CoI to nursing education. This approach builds on an established model (CoI) that can contribute to optimising blended learning.

## 2.3 Learning theories in higher education

Learning is a complex process, and not everyone learns in the same way. Understanding how the students learn is vital to designing and evaluating any curriculum. Learning theories throughout the disciplines tried to answer the question of how does an individual learn? Unfortunately, and even though higher education has viewed the community as crucial to supporting collaborative learning and discourse associated with higher levels of learning, some literature warns that the reality is far from this. Fry, Ketteridge et al. (2008) started their

book with a profound statement. They said: "*some academics teach students without having much formal knowledge of how students learn. Many lecturers know how they learned/learn best but do not necessarily consider how their students learn*." Furthermore, a large percentage of the staff who teach in higher education as subject matter specialists lack proper training in instruction and instructional design, even though they routinely design instructional materials (Khalil and Elkhider 2016).

Learning theories are conceptual frameworks describing how we absorb information and retrieve this information when needed. Behaviourists see learning as an aspect of training by promoting a system of external environmental stimuli such as a prize to produce behavioural changes in the desired direction. This view is opposed by the cognitivist theorists who believe that change of behaviour by external stimuli only is too narrow. They prefer to study internal mental processes, including insight, information processing, memory, and perception. By doing so, they hope that the learners will develop the capacity and skills to learn better. Humanistic is another school of theorist who sees learning as a result of the natural desire of everyone to fulfil potential. This will make the learner self-actualized and autonomous. Constructivist theory is another learning theory. It says that learners construct their knowledge and understanding of the world through experiencing and reflecting on new things. Then, learners merge new experiences with their previous ideas and experiences. The result could be changing what we believe or discarding the new information if irrelevant. A constructivist approach to learning in higher education has traditionally emphasized the sense of individual students captivating the logic of their educational experiences (Swan, Garrison et al. 2009). Finally, social learning theorists view learning as a cognitive process in a social context and can occur purely through observation or direct instruction, even in the absence of motor reproduction or direct reinforcement.

## 2.4 Few theorists crossed their theories with another school to produce a new theory. For example, Vygotsky, Piaget, and Boud talked about Social Constructivist theory. They believe that

## learning comprises cognitive structures that are still maturing; it can only mature under the guidance of or in collaboration with others. Community of Inquiry

The spread of personal computers in the 1980s, followed by the Internet revolution, has created new ways of delivering education courses to students in most aspects of their studies. E-learning is growing rapidly in many areas of teaching and learning, shifting from a 'face-to-face' model of delivery to a more flexible 'anywhere, anytime' access approach to course materials. However, the adoption of this new medium may be faster than our understanding of how to use it to support a quality educational experience (Garrison & Anderson, 2003, p. 6).

One recently developed theoretical framework for understanding online/blended learning approaches is the CoI framework developed by Garrison et al. (2000). This framework supports an educational experience in a computer-mediated communication and computer conferencing environment (Garrison et al., 2000). The CoI theoretical framework is built on a collaborative constructivist model of teaching and learning that provides a meaningful online education experience for higher education through three overlapping presences: social, cognitive, and teaching (Garrison et al., 2000, p. 88). According to Garrison et al. (2010a), the primary purpose of the CoI model is to introduce the best online communication media by using these three interdependent core elements to create an enhanced educational experience. The core function of the CoI framework is to manage and monitor the dynamic of thinking and learning collaboratively. Garrison (2017, p. 2) described the goal of the educational CoI as "to collaboratively engage in discourse and reflection with the intent to construct personal meaning and confirm mutual understanding". The university classroom is considered a CoI by this definition.

### 2.4.1 Purpose of the Community of Inquiry Framework for E-learning

The founders of the CoI framework observed that higher education today is rapidly adopting e-learning education to deliver courses and create an educational experience that is flexible

and primarily accessible anywhere at any time. This adoption is happening rapidly without any robust expectations or leading guidelines. Although the empirical research on the effectiveness of e-learning has been increasing recently, the development and acceptance of theoretical frameworks unique to the e-learning environment remain somewhat deficient (Arbaugh, 2007; Garrison & Anderson, 2003). Furthermore, Garrison and Anderson (2003, p. 11) argued the need for more rigorous research-based foundations to guide e-learning in higher education.

The rapid growth of the adoption of e-learning is challenged on occasion by technological and pedagogical difficulties. The vast number of new media technologies (video, blogs, wikis, etc.) often confuses designers of online courses (Shea & Bidjerano, 2009). The design of an online course needs to consider the impact on, and the outcomes for, the student by following an instructional design that integrates not only the technology but also the pedagogy.

Garrison and Anderson (2003) argued that e-learning capabilities and potentials should not be missed. They asked whether e-learning is being used to improve poor existing systems, or purely as a medium to convey and deliver information (Garrison & Anderson, 2003, p. 5). This argument is supported by the fact that e-learning allows text, voice, and video technologies in synchronous and asynchronous communication forms without the restriction of time and place. The technology used in this approach can enhance learning opportunities for students and graduates. Likewise, e-learning can assist in overcoming barriers to learning such as distance, time, geographical location (McKenzie & Murray, 2010) and sometimes cost. However, the pedagogical benefits of enhanced interaction and a collaborative learning environment for students and teachers are the most important features of e-learning. Such pedagogical benefits must be seized upon and made maximum use of to create a meaningful and sensible educational experience (Garrison & Anderson, 2003, p. 7).

The lack of interaction and collaboration in designing e-learning courses has led to developing a theoretical and conceptual framework. This framework enables educators in all disciplines

to integrate technology and pedagogy when designing e-learning courses and facilitates an understanding of the social, technological, and pedagogical processes that lead to the construction of collaborative knowledge (Shea & Bidjerano, 2009).

The developer of the CoI framework suggested that higher-order learning experiences can be powerfully demonstrated through a Community of Inquiry consisting of teachers and learners requiring both the demonstration of critical thinking and the engagement of 'real' persons to be successful (Arbaugh, 2007; Garrison & Anderson, 2003). Also, the CoI framework founders suggested that the online educational community could be an ideal "Community of Inquiry" if an appropriate framework were to be applied to the design of e-learning courses.

The CoI framework founders argued that today's higher education system is far from achieving higher-order learning outcomes. Consequently, Garrison and Anderson (2003) argued that the CoI theoretical framework epitomises a profound and meaningful (collaborative-constructivist) learning experience through the development of three interdependent presences – cognitive, social, and teaching.

### 2.4.2 Theoretical Foundation of CoI framework

Community of Inquiry is a broad concept used by Dewey (1938) to describe the learning process. Education and learning, seen by Dewey as a social and interactive process, should take place in the school or classroom. The interaction will create a community that thrives on finding a solution to a problem (Dewey, 1938).

The philosophy of Dewey, continued by Lipman (1991), argued that a classroom is a type of Community of Inquiry, which leads to examining, linking, reflecting, challenging, and improving problem-solving techniques. Students and teachers involved in inquiry form a community of inquiry under certain circumstances.

The CoI framework continues to expand beyond the classical classroom and lecture theatre. The work of Garrison et al. (2000) on computer-mediated communication and computer conferencing – later known as e-learning and online education – continued to adopt the CoI theory in e-learning education by developing a framework to facilitate and illuminate the pathway for online course designers and educators.

Understanding the theoretical foundations and epistemological insights of the CoI framework will assist in reinforcing its coherence and practical utility. The epistemology of a community of inquiry explores what knowledge is composed of and how it is rationalised in a collaborative constructivist CoI (Garrison, 2013, p. 2). The following core concepts are essential to understanding the epistemological assumptions underpinning the CoI framework: community, collaboration, constructivism, inquiry, and discourse (Garrison, 2013).

The CoI concepts are grounded in John Dewey's evolving epistemological understanding of education. Dewey (1959, cited in Swan et al. (2009) viewed the education experience as the fusion of the interests of the individual and society. Furthermore, the development of the individual was dependent upon the community. From this viewpoint, Garrison (2013) stressed that learning in an educational setting is a social activity that is profoundly community-based and collaborative. The challenge is to discover the meaning of community and the nature of collaboration. The essential elements of any community, as described by Rovai (2002, cited in Garrison (2013, p. 2), is to have "mutual interdependence among members, connectedness, interactivity, overlapping histories among members, spirit, trust, common expectations and shared values and beliefs". Garrison (2013) added that any education community needs to intentionally focus on learning and create a sense of belonging and personally meaningful academic collaboration.

Garrison (2013) viewed collaboration in the educational context as communication free of pressure and extortion, while respecting sensible disagreement and dialogue. Furthermore, the problems of understanding need to be raised in open, critical discourse that has the

potential for mutual agreement. All members of any educational community need to share the responsibility of creating a sense of leadership and regulation in the collaborative process. The relationship between collaboration and community is that they are influenced by each other. Community supports the ability to be collaborative, and collaboration supports the creation and development of community (Garrison, 2013, p. 3). This relationship is best described by Garrison and Anderson (2003) as viewing the learners in the CoI as individual thinkers but collaborative learners; they simultaneously act through cognitive independence and social interdependence, with the inference being that learning is social through collaboration with other members.

The multiple roots of constructivism are beyond the scope of this chapter, but in general, constructivism is a learning theory about how people gain knowledge and learn. The individual is responsible for constructing his/her knowledge and understanding of the world through new experiences by building on, and integrating previous knowledge and experiences (Garrison, 2013). As described by Gardenfors and Johansson (2005, p. 15), the general goals of constructivism are “for the learner to develop problem-solving and reasoning skills, critical thinking, and self-regulated learning”. These general goals are consistent with the concept of inquiry, as will be explored under the next sub-heading.

The work of Piaget (1977) on constructivism focused on the individual while recognising the importance of social interaction. Then Vygotsky and Cole (1978), focused on social constructivism, which was consistent with the work of Dewey, viewing thought and social experience as inseparable from the real world (Garrison, 2013). Vygotsky viewed learning as a process of inquiry in a collaborative environment. This explanation is core to the CoI, where all the participants in the learning are engaged in inquiry (Garrison, 2013). The distinct epistemological benefit of social constructivism is that meaning is established through dialogue and negotiation (Garrison, 2013). The relationship between social constructivism and the CoI is that the learner builds their new knowledge by critically exchanging ideas and answers to the inquiry by interacting with other members of the education community.

Inquiry is a process of problem-solving based on the scientific method (Garrison, 2013). The inquiry, in this sense, focuses on reflective thinking both individually and within the education community (Lipman, 2003). The linking part of any collaborative model is the ability to maintain critical discourse to solve the inquiry. In this regard, Dewey made inquiry central to educational practice (Garrison, 2013). This inquiry process is the bridge between interest and profound understanding. Inquiry is a social activity within the community of learners that depends on collaboration, discourse**,** and reflection.

### 2.4.3 Description of the Model

The CoI framework consists of three overlapping and interdependent elements. These elements are cognitive presence, social presence, and teaching presence. The CoI model, as shown in Figure 3 below, assumes that learning occurs within the community through the interaction of the three aforementioned core elements (Garrison et al., 2000).

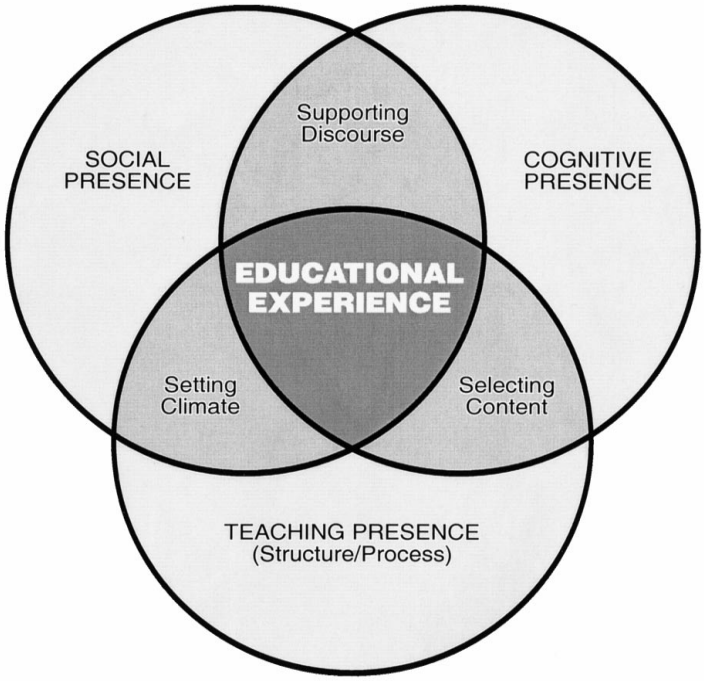


**Figure 3: CoI framework adopted from Garrison et al. (2000).**

The part of this model that is fundamental to effective higher education learning experiences is cognitive presence. Cognitive presence is the extent to which learners can construct meaning through sustained communication. Moreover, cognitive presence is the key element in critical thinking, a necessary element for higher levels of thinking and learning. Social presence, the second core part of the model, is the ability of the students to project their personal characteristics into the community. The importance of this part is to support cognitive presence through indirect facilitation of critical thinking carried out by the community of learners. Teaching presence is comprised of two functions: the design of the educational experience and the facilitation of the learning activities. This element reflects the creation, integration, and facilitation of both cognitive and social presence (Kanuka & Garrison, 2004).

The founders of the CoI framework constructed a template that contained the categories and indicators of the three presences. The indicators represent the words or expressions that imply the presence of the three aspects. Table 3 show the elements, categories and examples of the indicators.

**Table 3: CoI Categories and indicators**

| Elements | Categories | Indicators (examples only) |
|---|---|---|
| **Cognitive Presence** | • Triggering event<br>• Exploration<br>• Integration<br>• Resolution | • Sense of puzzlement<br>• Information exchange<br>• Connecting ideas<br>• Application / new ideas |
| **Social Presence** | • Affective (personal) expression<br>• Open communication<br>• Group cohesion | • Self-projection/expressing emotions<br>• Trust/risk-free expression<br>• Encouraging collaboration/interactivity |
| **Teaching Presence** | • Design and organisation<br>• Facilitating discourse<br>• Direct instruction | • Setting curriculum and activities<br>• Shaping constructive exchange<br>• Focusing and resolving issues |

#### *2.4.3.1 Cognitive Presence*

Cognitive presence is "the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse" (Garrison et al., 2001, p. 11). This presence is seen by the founder of the CoI framework as the most important element of success in higher education (Garrison et al., 2000). Cognitive presence is a core element in critical thinking. Critical thinking is a process and outcome frequently presented as the core goal of higher education. The idea of cognitive presence is grounded in the context of the Practical Inquiry (PI) model and reflective thinking from the work of Dewey (1933, cited in Garrison and Anderson (2003).

The PI model includes four phases (trigger, exploration, integration, and resolution). Figure 4 shows the phases of practical inquiry that form cognitive presence in a community of inquiry. The PI model describes cognitive presence in an educational context in general, and in e-learning specifically (Garrison & Anderson, 2003). The cognitive presence phase relies on the integration of the private and public world of the learner for educational purposes (Garrison, 2017).

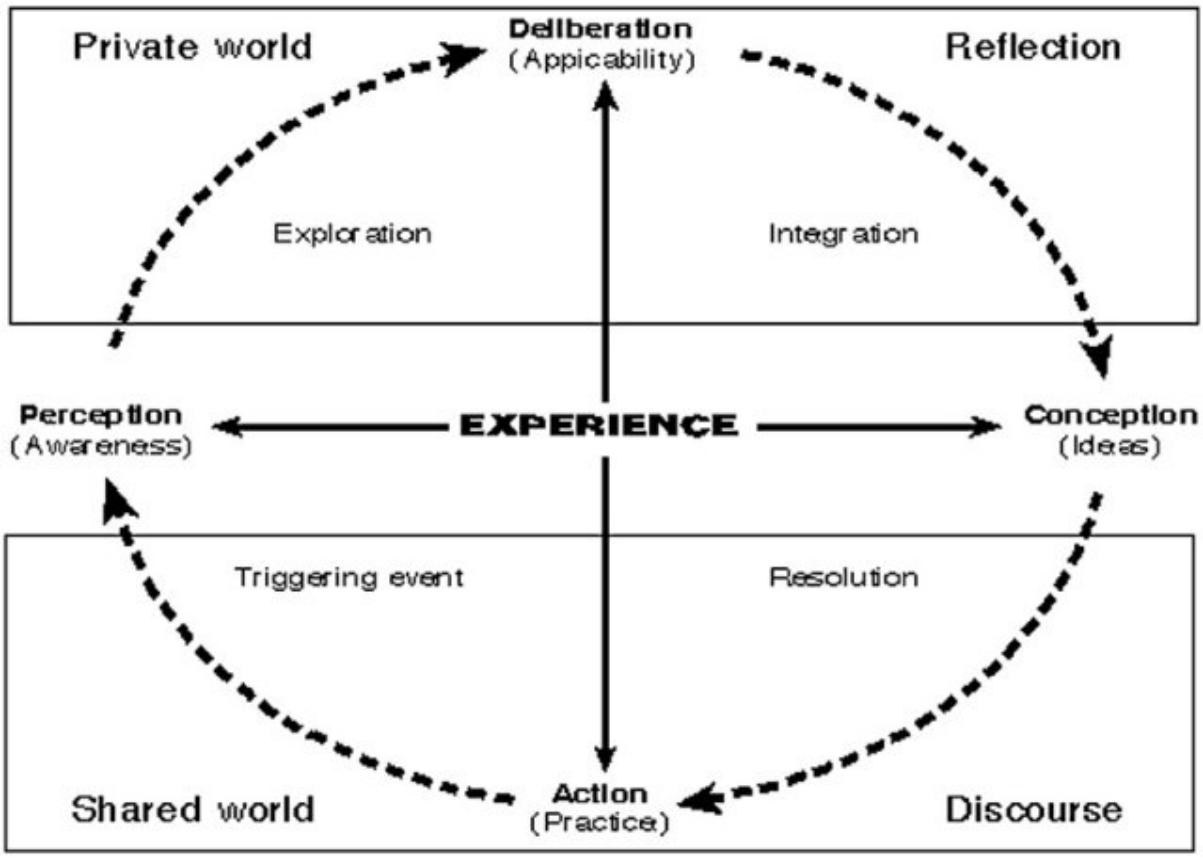


**Figure 4: Practical Inquiry model for cognitive presence, adapted from Garrison et al. (2000)**

The first phase of PI is the triggering event, where the problems, dilemmas, or questions are initiated to stimulate the inquiry process. In this phase, the educator posts the inquiry to the community that they are familiar with or have previous experience with. The course can also be designed in an open way to allow the students to post questions and participate in the co-creation of knowledge.

The second phase of PI is the exploration phase. In this phase, the learners chase new information, insights, and ideas about the problem (Akyol & Garrison, 2011a). The search for relevant information and literature can be undertaken via group work or individually (Garrison & Akyol, 2013).

The third phase is the integration phase, where the learners integrate what they have discovered into coherent knowledge and understanding. According to Garrison (2017), this is

the challenging part of the process, and should be a highly reflective phase that can be enhanced with critical discourse within the community.

The fourth phase is the application/resolution of the problem or inquiry. In this phase, the learners refine, apply, and find a solution to the questions. If no agreement or answer is found, the cycle of inquiry starts again.

#### *2.4.3.2 Social Presence*

Social presence is “the ability of participants in a community of inquiry to project themselves socially and emotionally, as ‘real people, through the medium of communication being used” (Garrison et al., 2000, p. 94). The need for social presence has been evident from the beginning of online education. The missing visual clues and non-verbal cues via early versions of online education added a challenge to creating a community of learners that engaged and collaborated using text-based communication only (Garrison, 2017). Since education is a collaborative experience, social presence plays a major role in the CoI model, especially in asynchronous text-based communication and distance learning. Social presence is socialising for educational purposes, to create a community in which the members have goals.

According to the founder of the online CoI framework, the categorisation of social presence was constructed through a theoretical analysis of the literature, and the analysis and coding of discussion forum and communication transcripts (Rourke et al., 1999). Social presence indicators have three broad categories: effective communication, open communication, and cohesive, communicative response.

Effective communication is the emotional climate that creates a respectful and purposeful connection among the members of the educational CoI. For example, communication via text can include emoticons, capitalisation, language, humour, and self-disclosure. The second indicator of social presence is open communication, through which a climate of trust and acknowledgement of self and others leads to acceptance within the learning community (Garrison, 2017); for example, expressing agreement or disagreement in a respectful way

within the group. The third indicator is group cohesion. A simple example of this is calling CoI members by their names, and the use of inclusive pronouns such as ‘we’ and ‘our’. The effects of group cohesion will increase collaboration, and eventually, improve learning outcomes. The main challenge for the course designer is to establish a social presence that supports thinking and collaboration in a CoI.

When social presence is combined with appropriate teaching presence, the result can be a high level of cognitive presence leading to fruitful critical inquiry. Furthermore, Garrison et al. (2000) argued that cognitive presence, as defined and described in the previous section, is more easily sustained when a significant degree of social presence has been established.

#### *2.4.3.3 Teaching Presence*

Teaching presence is “the design, facilitation, and direction of cognitive and social processes to realise personally meaningful and educationally worthwhile learning outcomes” (Anderson et al., 2001, p. 5). Teaching presence wraps all the core elements of a CoI together in a balanced and functional relationship consistent with learners' intended outcomes, needs, and capabilities. The founder of the online CoI viewed e-learning technology and advancement as an opportunity to connect learners in a collaborative environment to create a learnING-centred, rather than a learnER-centred, approach (Garrison, 2017), but this approach needs leadership, purpose, and structure that is decided by the aims of the course. Teaching presence gives the teacher the responsibility to create an environment to achieve a collaborative approach using cognitive and social presence to produce a worthwhile educational experience. The CoI framework called this category TeachING presence rather than TeachER presence, which means that the entire community is responsible for creating and achieving this presence. Teaching presence has a central function in the educator’s role in three categories: design and organisation, facilitation, and direct instruction.

**Design and organisation** represent the macro-level processes needed to build a course using online learning technologies to maximise collaboration. This means that the online

course and all its activities need to be designed in advance. While the design is undertaken before the course, the organisation takes place during the course (Garrison, 2011). The CoI framework is a flexible framework that allows learners to participate and collaborate in what is to be studied and how it is to be approached.

Table 4 below summarises these categories with examples.

**Table 4: Instructional design and organisation indicators (Garrison, 2017)**

| Indicators | Examples |
|---|---|
| **Setting the curriculum** | "This week we will be discussing …." |
| **Designing methods** | "I am going to divide you into groups and you will debate …." |
| **Establishing time effectively** | "Please post a message by Friday …." |
| **Using the medium effectively** | "Try to address issues that others have raised when posting." |
| **Establishing netiquette** | "Keep your messages short." |
| **Making macro-level comments about course content** | "This discussion is intended to give you a broad set of tools/skills which you will be able to use in deciding when and how to use different research techniques." |

Facilitating discourse is the second element of teaching presence. In the online environment, as in the face-to-face setting, handling and facilitating discourse is a significant role of the educator to achieve the purposes of the learning community. Keeping the discourse focused and constructive while increasing reflection and engagement opportunities is crucial. In this category, educators play an important leadership role by facilitating, but not controlling the discourse. Too much or too little teaching presence can affect the educational outcomes (Garrison, 2017). For example, teachers identify areas of agreement/disagreement, seek to reach consensus, encourage and reinforce student contributions, and set the learning environment. See **Table 5** below for the facilitating discourse indicators with examples.

**Table 5: Facilitating discourse indicators (Garrison, 2017)**

| Indicators | Example |
|---|---|
| **Identifying areas of agreement/disagreement** | "Joe, Mary has provided a compelling counter-example to your hypothesis. Would you care to respond?" |
| **Seeking to reach consensus/understanding** | "I think Joe and Mary are saying essentially the same thing." |
| **Encouraging, acknowledging or reinforcing student contributions** | "Thank you for your insightful comments." |
| **Setting the climate for learning** | "Don't feel self-conscious about 'thinking out loud' on the forum. This is a place to try out ideas after all." |
| **Drawing in participants and prompting discussion** | "Any thoughts on this issue?" "Anyone care to comment?" |
| **Assessing the efficacy of the process** | "I think we're getting a little off track here." |

The third element is direct instruction**.** It is the academic leadership element that adds the authoritative influence to the formal educational environment. In this element, the founder of CoI stressed that this should not be considered as a challenge to the "guide on the side" concept of the collaborative environment, but rather, as the link to maintain the educators' role of monitoring and to focus the discourse on achieving the educational goals. For example, the educator can present the questions, focus on the content, summarise the discussion, diagnose misconceptions, and respond to technical concerns.

**Table 6: Direct instruction indicators**

| Indicators | Examples |
|---|---|
| **Present content/questions** | "Bates says …" "What do you think?" |
| **Focus the discussion on specific issues** | "I think that's a dead end. I would ask you to consider …." |
| **Summarise the discussion** | "The original question was … Joe said … Mary said … We concluded that … We still haven't addressed …." |
| **Confirm understanding through assessment and explanatory feedback** | "You're close, but you didn't account for …" "This is important because …." |
| **Diagnose misconceptions** | "Remember, Bates is speaking from an administrative perspective, so be careful." |

| | |
|---|---|
| **Inject knowledge from diverse sources, e.g., textbooks, articles, the Internet, personal experiences (includes pointers to resources)** | "I was at a conference with Bates once, and he said … You can find the proceedings from the conference at http://www …" |
| **Responding to technical concerns** | "If you want to include a hyperlink in your message, you have to …." |

Despite the different names, definitions, and types of e-learning, the advantages are well established in the literature. Online higher education needs a learning theory that fills the gap between technology, pedagogy, and learners' needs. Nursing is a collaborative profession that requires a collaborative constructivist approach to teaching and learning to create collaborative thinkers. Blended learning is the preferred mode of teaching for healthcare and nursing disciplines. The CoI framework uses the collaborative constructivist approach for online/blended learning and has been used in a range of disciplines and topics to achieve worthwhile educational experiences for learners. The online/blended nursing literature has shown only limited research on the useability and applicability of this framework for nursing education. An important aspect of this thesis is the aim of exploring the use of the CoI framework in nursing research worldwide.

#### *2.4.3.4 CoI beyond Garrison*

The main work on using the CoI framework comes from U.S. and Canada, as the primary language of the CoI instrument is English (Castellanos-Reyes, 2020). However, recently, the interest in the CoI instrument increased in other languages. The CoI instrument was translated and validated into other languages like Spanish(Velázquez et al., 2019), Turkish (OLPAK & KILIÇ ÇAKMAK, 2018), Chinese (Ma et al., 2017) and Korean (Yu & Richardson, 2015). This expands the validity and opens the door for new valuable applications of the framework in the online education field.

The framework also expanded to use beyond the higher education course and evaluation to measure the validity and reliability of the CoI instrument within the context of the Open Online Courses (MOOCs). For example, Saadatmand et al. (2017) contended that the CoI could be established in MOOCs with great accentuation on teaching presence attributes. The same conclusion is supported by Kovanović et al. (2018), who recommended promoting the active roles of instructional support and guidance ( teaching presence) as a successful MOOC course strategy.

#### *2.4.3.5 Critique of the CoI framework*

Despite the widespread use of the framework, especially after the development of the 34-item instrument, which was found to be "a valid, reliable, and efficient measure of the dimensions" of the CoI framework (Arbaugh et al. 2008, p. 133), the researchers in the field of education criticized the CoI framework. Some criticized that the learners do not achieve meaningful learning outcomes in the CoI designed course, like in Rourke and Kanuka (2009). In this regard, Akyol et al. (2009a) responded to this critique and explained that the CoI framework embraces a constructivist approach to learning and teaching that makes it a process model. The constructivist approach focuses on how humans construct knowledge as opposed to objectivist focusing on learning outcomes.

Another critique of the CoI framework is that the framework needed a fourth component to achieve a worthwhile educational experience. For example, Shea et al. (2012) suggested adding 'learning presence', Cleveland-Innes and Campbell (2012) suggested adding 'emotional presence', and Lam (2015) suggested adding 'autonomy presence'. These extra presences have not been validated or adopted (Garrison, 2017; Kozan & Richardson, 2014).

# CHAPTER THREE: LITERATURE REVIEW

In the previous chapter, the CoI framework was introduced. Chapter three will present a systematic scoping review of the CoI framework in nursing education, following the PRISMA-ScR guidelines by Tricco et al. (2018). The review presented in this chapter aimed to identify the literature related to nursing education and the CoI framework usage worldwide. This Chapter intends to build a knowledge foundation and literature gap to justify the described study in this thesis. This chapter highlighted the methods used in the review, including the rationale and the objectives, the search terms, inclusion criteria, selection of the sources, and result synthesis. It also described the thematic analysis that was used to identify the themes of the included studies. The chapter ended with a discussion on the findings and research gaps.

## 3.1 Introduction (Rationale and Objectives)

The characteristics of today's higher education students have changed to being more online-oriented and with a different mindset in relation to how they want to learn. The COVID-19 pandemic has shown how online learning is needed in some circumstances to replace traditional education. This has led to significant thinking about pedagogical changes that are suitable for teaching and learning courses in nursing. Hence, research is required to understand the best pedagogical and theoretical framework to design and evaluate online/blended nursing courses in the higher education setting. It is also crucial to give nursing educators a voice to explore their current practice in designing and evaluating online/blended courses. The CoI framework has great potential for designing, delivering, and evaluating online and blended courses; however, the applicability of the framework to nursing education has not been studied widely. It is unclear what type of information is available in the literature in relation to the applicability of the CoI framework to online /blended nursing education. Furthermore, nursing educators' opinions on this type of framework are essential to

understand and analyse. For these reasons, a scoping review was conducted to systematically map the research undertaken in this area and to identify the existing knowledge gaps.

This scoping review will familiarise the reader with the main ideas associated with the CoI framework in nursing literature. This area of research is quite new, and the CoI framework has not been tested widely; with only limited research on the topic within the discipline of nursing, a scoping review is deemed appropriate to provide an overview and a map of the available evidence, rather than to produce a critically appraised and synthesised answer to a particular question, such as would be the case in a systematic review (Munn et al., 2018, p. 3).

The rationales for conducting a scoping review, as described by Munn et al. (2018) and Tricco et al. (2018), are as follows:

- Summarising the findings from a body of knowledge that is heterogeneous in methods or discipline
- Establishing the range and nature of the evidence in a particular field
- Identifying gaps in the literature
- Identifying key concepts/definitions in the literature

A synthesis of the evidence, as undertaken in this scoping review, will be beneficial for decision-makers to produce evidence-based practice through a summary and critique of the literature on the applicability of the CoI framework to online/blended nursing education in Australia. The use of a scoping review methodology to search the literature was chosen because the literature is heterogeneous and diverse, which makes this method an excellent fit for responding to the research questions.

## 3.2 Methods

### 3.2.1 Search Terms

The search terms used in the search strings extracted from the research questions using PICO classifications for the following research questions:

1. What are the opinions of nursing educators [academics] on the applicability of the three core concepts of the CoI framework for blended or online nursing education in Australia?
2. What do blended/online nursing educators [academics] in Australian universities know about the CoI framework?
3. How do nursing educators (academics) use an educational theoretical framework and create a learning community in online/blended courses?
4. Is there an implicit relationship between the design/evaluation of blended or online courses and the constructs of CoI?
5. What are the factors affecting the adoption of the Community of Inquiry framework in Australian nursing education?

The PICO classifications for the study are:

- **Population/Problem:** Nursing educators (academics), course design and evaluation
- **Intervention:** CoI framework
- **Comparison (if applicable):** CoI framework and other learning theories for nursing
- **Outcome(s) of interest**: Knowledge and awareness/applicability/suitability of CoI

The concepts arising from the research questions were used to extract the search terms and then to build the generic search strings, as shown in Table 7.

**Table 7: Keywords used to form the search strings**

| Concepts | Terms | Search string |
|---|---|---|
| **Community of Inquiry** | • community of inquiry<br>• communities of inquiry<br>• community inquiry<br>• community of enquiry<br>• communities of enquiry<br>• *COI – can not be used as it also means 'cost of illness' | "communit* or inquiry" OR "communit* inquiry" OR "communit* enquiry" |
| **Mode of delivery** | • blended<br>• online<br>• technologically-mediated<br>• computer-mediated<br>• e-learning<br>• network learning<br>• asynchronous<br>• social learning<br>• mixed-mode instruction<br>• mixed-mode learning<br>• web-based<br>• web 2.0<br>• collaborative | blended OR online OR "technolog*-mediat*" OR hybrid OR "computer-mediat*" OR "e-learnin*" OR "networ*-learn*" OR asynchron* OR "social*-learn*" OR "mixed-mode instruct*" OR "mixed-mode* learn*" OR "web-based" OR "web 2.0" |
| **Evaluation** | • evaluation<br>• appraisal<br>• rates<br>• ratings<br>• opinion<br>• assessment<br>• critiques<br>• judges<br>• judgement<br>• reviews | evaluat* OR apprais* OR rate* OR rating* OR opinion* OR assess* OR critique* OR judge* OR review* |
| **Design** | • design<br>• constructs<br>• conception<br>• conceptualise<br>• formation | design* OR construct* OR conception* OR conceptual* OR formation* |
| **Nursing** | • nurse<br>• nursing | Nurs* |
| **Knowledge and Awareness** | • knowledge<br>• awareness<br>• insight of<br>• familiarisation<br>• proficiency<br>• recognition<br>• acquaintance with | knowledge* OR awareness* OR insight* OR familiar* OR proficien* OR recogni* OR acquaintan* |

After consultation with the College of Nursing and Health Sciences Librarian at Flinders University, the following criteria were applied for the search strategy:

- use of the ProQuest and Scopus databases as these hold the most education papers.
- exclude the concept of 'Learning Theory' from the search string because it is too broad and would produce a large number of papers that would not be related to the research questions.
- use the terms (Communit* of inquiry Or Communit* of enquiry) at the beginning of the search string.
- excluded the terms (social presence, cognitive presence, and teaching presence) from the search string as these are not part of the research questions, and they yielded more than 1,200 articles in ProQuest alone.
- this use of one systematic, rigorous search, rather than multiple searches to produce a methodologically sound search string. The search string below was used to search the databases listed in Table 1:

(("communit* of inquiry" OR "Communit* of enquiry") AND (blended OR online OR "technolog*-mediat*" OR hybrid OR "computer-mediat*" OR "e-learnin*" OR "networ*-learn*" OR asynchron* OR "social*-learn*" OR "mixed-mode instruct*" OR "mixed-mode* learn*" OR "web-based" OR "web 2.0") AND (evaluat* OR apprais* OR rate* OR rating* OR opinion* OR assess* OR critique* OR judge* OR review* OR design* OR construct* OR conception* OR conceptual* OR formation* OR knowledge* OR awareness* OR insight* OR familiar* OR proficien* OR recogni* OR acquaintan* OR nurs*))

### 3.2.2 Inclusion criteria

Pre-defined criteria were used to include studies for the literature review. The studies fulfilling the following criteria were included:

- **Time:** published after January 2000. The reason for limiting the papers to after this time is that the seminal work on the CoI framework was published in 2000.
- **Intervention:** Papers describing any higher education nursing students' or nurse educators' issues and perceptions of the CoI framework and online learning and teaching.
- **Study populations:** Nursing, midwifery, nursing students, and nursing educators.
- **Study design**: The study designs included in the literature review were qualitative, quantitative, research-based, randomised controlled trials, systematic reviews, and case studies.
- **Settings**: All settings were eligible for inclusion.
- **Languages:** Only papers written in the English language were included.

The follwoign studies were excluded if: (1) not published in the English language; (2) used a population of K-12 students; (3) published before 2000; (4) unable to access the full article or the full text was not available; (5) not relevant to the research questions. The initial search was conducted in September 2015 and updated in September 2021. Titles and abstracts were screened based on the selection criteria. After this, the full-text versions of the selected articles were retrieved and reviewed independently, and the references in the included articles were checked for relevant papers to be included in the literature review. See Table 8 below for the included articles.

### 3.2.3 Selection of sources of evidence

An electronic, systematic, step-by-step approach was undertaken to ensure transparency, comprehensiveness, and rigour in searching the databases. The researcher, alongside the College of Nursing and Health Sciences librarian at Flinders University, conducted an initial scoping search of a range of electronic databases using strategic keywords. The following databases were searched for articles ranging from 2000 to September 2021: Scopus,

Proquest, CINAHL, and Web of Science. All literature searches and full-text retrieval were executed by the PhD student of this thesis and managed in Endnote.

### 3.2.4 Synthesis of the results

The retrieved articles were analysed and summarised in a table showing the author(s) name, year and place of publication, the study settings, the participants, key findings, limitations, and how the CoI framework was used as shown in Table 8. The studies were then grouped into themes according to the key findings to answer the research questions.

## 3.3 Results

In total, 813 articles were identified from the Scopus, Proquest, CINAHL, and Web of Science databases, with 245 duplicated articles being removed before the screening. A total of 568 titles and abstracts were screened manually, and 116 manuscripts were retrieved in full, with 31 articles being included after the eligibility assessment, as shown in Figure 5 below.

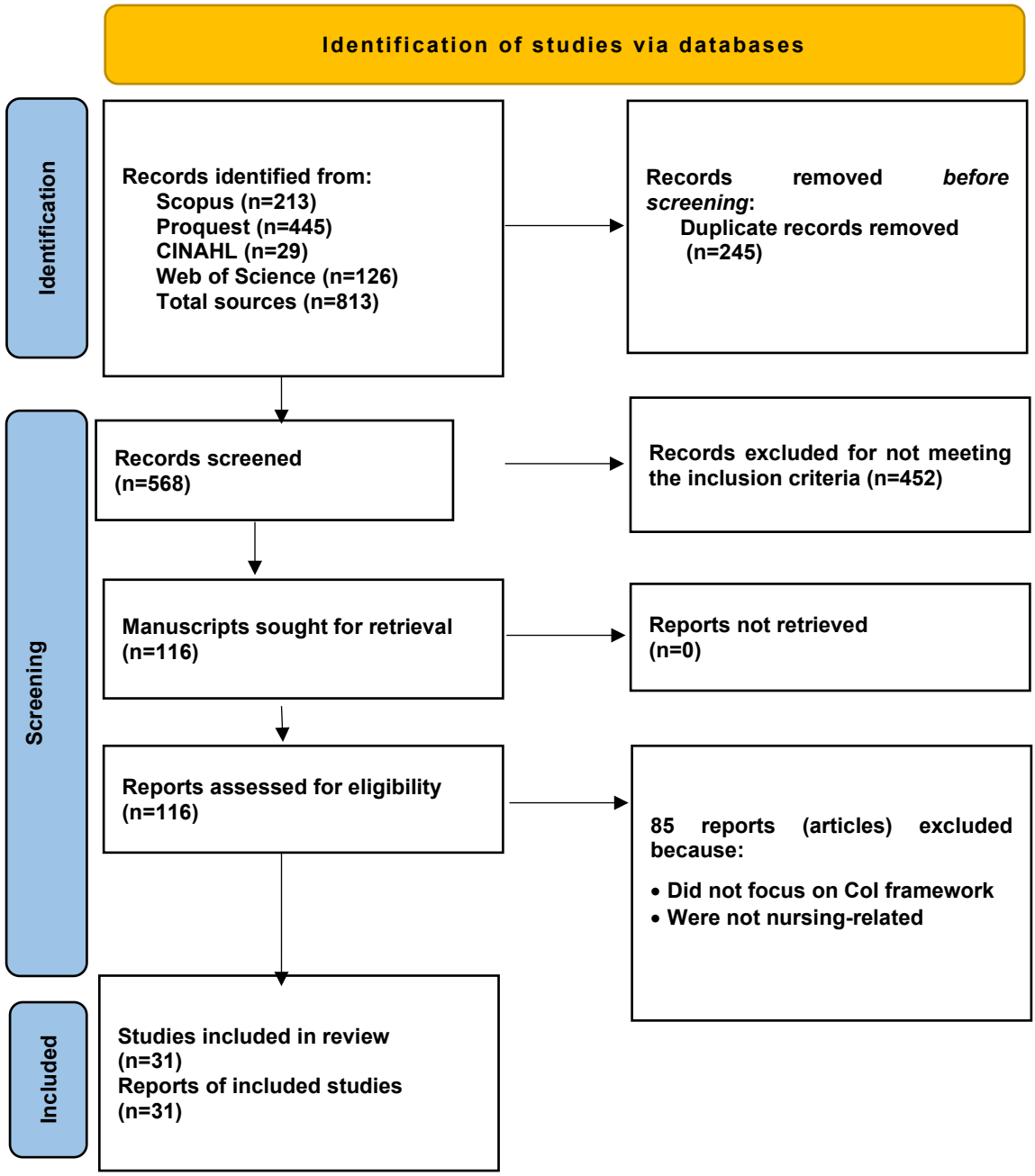


**Figure 5. PRISMA flow diagram demonstrating the search process**

This review is particularly focused on the literature pertaining to nursing courses, students, or educators using the CoI framework. A breadth of evidence was found, as shown in Table 8. Thematic analysis was undertaken using the six-step method of Braun and Clarke (2006).

### 3.3.1 Study locations

Most of the reviewed studies were from the United States (n=20), while the remaining 11 came from six countries, including Australia (n=3), Canada and the UK (n=2 each), with one article each from Singapore, South Korea, China, and Ireland (see Figure 6 below).

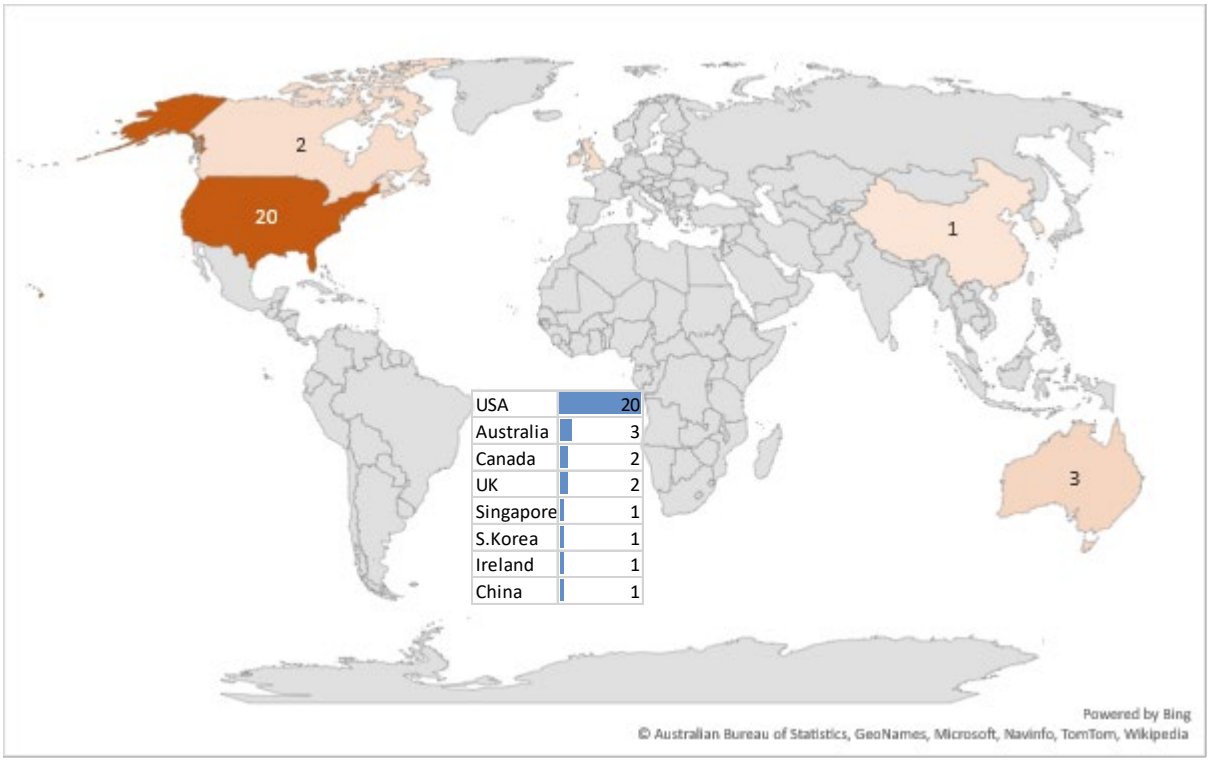


**Figure 6: Number of publications per country**

### 3.3.2 Year of publication

The CoI framework for online and blended learning by Garrison et al. (2000) is a relatively new pedagogical framework, which has been used widely as an online model for instructional design and evaluation across various disciplines. This review shows that the interest in the CoI framework in the nursing education literature started in 2011, and has increased in recent years, but primarily in 2021 (n=7 publications), which could be indicative of the shift to online education due to COVID-19 restrictions (see Figure 7).

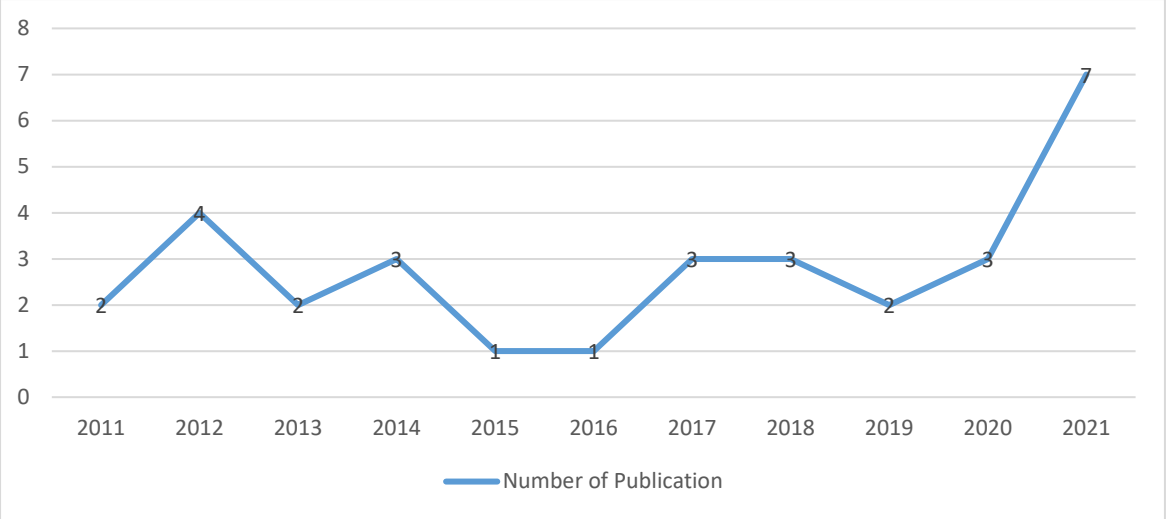


**Figure 7: Number of publications per year**

### 3.3.3 Study designs

The study designs found in the selected articles were primarily quantitative and quasi-experimental (n=16), and qualitative (n=6), with only four studies using mixed-methods. There were two discussion papers and one case study, as well as one study that developed a peer evaluation tool using the CoI framework. Only one literature review was found and included in this review (Phillips et al., 2013). There were no randomised controlled studies, possibly because of the complexity of controlling the learning and teaching environment.

### 3.3.4 Study participants

Only seven studies involved nursing educators as participants. The studies focused on understanding the nurse educators' perceptions of the CoI framework or evaluating a redesigned course that used a CoI framework. Most of the remaining articles included students as participants to evaluate redesigned courses.

**Table 8: Summary of included studies regarding nursing education and the CoI framework**

| 1st Author(s), (Year) , Country | Aim(s) of study | Method and Study Design/ intervention | N/ Participants | Online or Blended | Relevant/Most important findings | Critique/Theme |
|---|---|---|---|---|---|---|
| **Glogowska, M (2011), UK** | This paper explores students' perceptions of blended learning modules delivered in a Continuing Professional Development (CPD) health care context in the UK. | Part of a mixed-methods study. This paper reports only the qualitative study data collection: interviews by telephone | Seventeen students had experienced the modules. 16 were nurses, and the other was an allied health professional | Blended | Three main themes emerged from the interviews: i) Opportunities for discussion of online materials face-to-face. ii) What material should be online versus face-to-face iii) Balancing online and face-to-face components Firstly, careful planning is required for all blended learning modules to ensure that online and face-to-face components reflect the module's learning outcomes. Secondly, consideration should be given to ensure that a CoI can be forged in individual modules to provide students with personal support and intellectual facilitation. | Only the qualitative part of the MMR, and not clear how they used the CoI framework<br><br>Redesign/CoI and blended learning |
| **Mayne, LA (2011), USA** | To examine outcomes of integrating social presence strategies into an online graduate nursing course and lays the groundwork for a more extensive study into dimensions of social presence and student satisfaction | A two-group comparison design online questionnaire at the conclusion of the course. The 12-item survey, on a Likert scale to measure SP, adapted from Rovai, Wighting, & Lucking (2004) | Master's students N=26 (68%). 16 students were enrolled in the social presence section (SPS) and 10 in the control section (CS) | Online | The results demonstrate that the purposeful incorporation of specific social presence techniques had a **positive** impact on student perceptions of social presence and group interaction, as well as online learning expectations. | A pilot study with a small sample size n=26<br><br>Redesign/the use of Social Presence only |
| **Carlon, S (2012), USA** | To validate the instrument with a population of students in three health care disciplines (nursing, physical therapy, and health care administration). A secondary aim was to identify similarities and differences in the CoI model among selected health care disciplines comparing sample student populations in previously described research | This study was descriptive using a survey instrument designed to measure teaching, social, and cognitive presence in an online community of learners in health care disciplines (CoI 34-item survey) | 46% (N=330) response rate. Of the 330 respondents, 274 were from the nursing discipline (83%), 32 were from physical therapy (10%), and 24 (7%) were from combined programs of health information management and health care administration programs | Online | The findings of this study were important in that the CoI was validated in four health care disciplines matching those of the Shea and Bidjerano (2009b) study. More investigation for the possibility of fourth factor model when the researcher used varimax rotation analysis that was different from the original CoI analysis. Graduate or undergraduate status did not affect any measure of teaching, cognitive, or social presence, nor did age or gender. Need for a qualitative component in the CoI survey to get a deeper understanding of learners' needs. | Validation of CoI evaluation tool |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Goldstein, DS (2012), USA** | Ten weeks blended course for six nursing academics on how to embed CoI framework into their course design<br>1-To describe how the CoI framework was used to undergird a ten-week Hybrid Course Development focusing primarily on social presence<br>2-To assess the satisfaction of students enrolled in participants' redesigned blended courses | Mixed-methods research<br>Phase 1: measure the level of experience of the educators' pre and post the 10-week development course<br><br>Phase 2: Student feedback survey using CoI survey adapted from Garrison and Vaughan (2008) | Six nursing faculty members + five faculty members from other academic programs on campus<br><br>2. Eight blended classes with approximately N=150 total responses | Blended | 1- The educators showed an increase in their course design skills after the professional development course about how to use the CoI framework in the design of blended courses.<br>2- The students of the redesigned courses reported an increase in the amount and quality of the interaction with the instructors and other students and high satisfaction.<br>3- The key findings of this study were the importance of the SP to set the climate for the other two components of the CoI (CP and TP). The study recommends applying a macro level of a campus-wide SP and CoI. | This research did not use the 34-item CoI validated tool<br><br>Course Redesign/CoI and blended/Social presence |
| **Kuhns, KAK (2012), USA** | The purpose of this study was to investigate nursing faculty's knowledge of Web 2.0 technology, current use of Web 2.0, and their perceptions of the importance of their role in facilitating presence in the online classroom | -A quantitative descriptive non-experimental design<br>-Modified CoI Survey to measure faculty role in facilitating presence. | 32% (N=499) response rate of nursing faculty<br><br>Furthermore, faculty use of three of the four Web 2.0 tools was associated with the level of perceived importance of teaching presence. It was suggested that faculty teaching presence was the basis for developing other forms of presence; thus, faculty in the current study recognised the value and importance of these faculty roles | Online | Integration of blogs and wikis both demonstrated a significant relationship with faculty perception of the importance of their role in facilitating **teaching presence**, while the use of social networking was related to the perceived importance of the role in facilitating **social presence**.<br>Faculty perceived the importance of their role in facilitating **cognitive presence** was associated only with wikis.<br>**Finally, faculty demonstrated that they viewed their role in teaching presence as the most important.** | The original CoI survey tool was designed for students to evaluate the online course. Changing the instrument to suit the educators could impact the accuracy and bias on the evaluation of self-practices<br>Technology and the perception of CoI |
| **Smith, Y & Caplin, M (2012), USA** | Redesign of online professional course for RN-BSN using CoI framework | Discussion paper on the result of developing the elective course using CoI framework and<br>student evaluation form | N/A<br>Student Survey of Instruction (SSI), an anonymous online survey that evaluates both the course and the instructor | Online | Group work was very important to develop leadership skills. | Not clear how they used CoI and how they measured the effect of the three presences<br>Redesign |
| **Phillips, D (2013), Australia** | 1: To review the literature on what is meant by blended learning in university-based courses<br>2: To present the authors' experiences of blended learning, incorporating the CoI model and collaborative learning in the Deakin University Master of Nursing Practice (Nurse Practitioner), an off- | Literature review and case study of the redesigned course | N/A | Blended | Recognise the benefits of applying blended learning supported by the CoI model to achieve collaboration.<br>Using BL and CoI in the Nurse Practitioner course has facilitated the use of flexible innovation in online technologies.<br>This has been achieved through increased interactions and connections between students and academics, thereby supporting our students throughout their course experience. | CoI, Technology and blended learning<br>CoI in Australian nursing education. |

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|---|---|---|---|---|---|---|
| | campus course managed from Melbourne Campus at Burwood, Victoria | | | | | |
| **Stephens, M (2013), UK** | The researchers sought to examine whether synchronous online face-to-face contact (Skype) using improved support and communication for students nursing overseas and if cultural awareness was developed for those nursing students who stayed on native soil | Action research<br>The two methods used to gather data were online questionnaires and focus groups | 18 students<br>12 academic staff were also involved in the evaluation | Online | Themes arising from the thematic analysis of the narratives included operational issues, pastoral care, academic and peer support, and cultural awareness and development.<br>The use of Blended Learning tools such as Skype and weblogs were found to be extremely beneficial as a form of online communication and support for students undertaking an international placement. In relation to cultural awareness, further work is required.<br>Skype can therefore be considered a useful medium to blend traditional teaching and learning methods as the added value is face-to-face contact | Not clear how CoI was used<br>Redesign/Technology and the perception of CoI |
| **Cox-Davenport, RA (2014), USA** | To understand how faculty perceive and create a social presence in their online classroom | Grounded theory approach<br>Semi-structured interviews over the phone or in person. Online course analysis. | The sample consisted of 10 nursing faculty teaching various Masters nursing courses | Online | Humanisation was found to be the climate factor central to establishing a social presence. Humanising the course climate leads each member of the community to see the other members as real, thus enabling the establishment of an online social presence.<br>Faculty patterns: cyber role modelling, maintenance, and awareness.<br>Faculty perceptions included: meaningful socialisation, facilitating connections, and student control.<br>These findings suggest that faculty found value in creating a climate where the individual was acknowledged and a prominent centre-point of the course. | SP-TP<br>Social presence |
| **Lindley, MK (2014), USA** | Examined the use of audio-video with text-based feedback versus text-based only feedback on student perceptions of the CoI | Exploratory, quasi-experimental study<br>The use of the CoI framework survey tool<br>Thesis | RN-BSN online students (n=125) enrolled in one course at one university | Online | Subjects who received AV feedback reported higher teaching presence scores than those who received only text feedback. The group with the higher teaching presence scores had higher scores on the post-social and cognitive scores. The conclusion drawn from the results was that the study findings supported the theoretical model.<br>The use of AV feedback may have contributed to increases in all three of the CoI presences. | Technology and the perception of CoI |
| **Posey, L (2014), USA** | In this study, the interrelated components of a CoI—teaching, social, and cognitive presences—are analysed in the context of four online nurse practitioner learning | Case study<br>Used CoI framework as a lens to analyse the 4 different online activities | N/A | Online | The CoI model is an excellent tool for ensuring that online asynchronous and synchronous discussions, collaborative team projects, and collaboration facilitated by VoiceThread foster active learning, engagement, socialisation, and the | Redesign/Technology and the perception of CoI |

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|---|---|---|---|---|---|---|
| | activities that used different teaching strategies to promote critical reflection and dialogue: 1) asynchronous discussion; 2) synchronous presentations; 3) collaborative projects; and 4) VoiceThread | | | | necessary clinical reasoning and problem-solving skills for NP education. | |
| **Claman, FL (2015), USA** | The purpose of this pilot study was to test the hypothesis that web-based synchronous instruction utilising Multi-user Virtual World Environments (MUVEs) increases student engagement scores compared to traditional asynchronous learning methods | Quasi-experimental two group post-test only study<br>The use of CoI survey to evaluate engagement | A convenience sample of Family Nurse Practitioner students (n=21) received instruction using either synchronous (n=10) or asynchronous (n=11) learning method. | Online | Results indicated that engagement scores were significantly higher for the synchronous learning platform compared to the asynchronous learning platform.<br>Increased student engagement with synchronous MUVEs platforms have the potential to improve learning outcomes and offer nursing students a multitude of educational opportunities to practice new skills and behaviours in real-life scenarios.<br>Synchronous MUVEs has the potential to increase student engagement which may facilitate learning in the online environment. | Small sample size, subject self-selection<br>Technology and the perception of CoI |
| **Jane Mills et al. (2016), Australia** | Evaluate student satisfaction with a postgraduate nursing and midwifery subject in "Research design, theory, and methodology", which was redesigned and delivered using a CoI framework | An evaluative study using the CoI framework survey and interview | CoI survey (N=29)<br><br>Interviews (N=10)<br><br>Postgraduate nursing students enrolled in a research topic | Online | A strong teaching presence builds a CoI in the nursing research subject.<br><br>The combination of the three presences in CoI supports student satisfaction and learning.<br><br>Uniquely, this study demonstrates CoI's potential effectiveness in delivering nursing and midwifery research education and developing knowledge, capability, and pathways to apply research findings into practice.<br><br>When used optimally, CoI is invaluable as a complete teaching method, for both content and practice, for research-related subjects. | Redesign a course and evaluation |
| **Panicker, Leena (2017), Australia** | To evaluate the design, implementation, and outcome of a flipped classroom using the CoI framework | Evaluative study.<br>The use of reflective discussion online posts and an end of semester student evaluation survey. The quantitative data were collected using the unit analytics tool from the LMS and the summative assessment results | N=202 undergraduate student nurses enrolled externally | Online | Student access and interactions were higher than the school average in this course.<br>Challenges to SP is the group of students who prefer to study at their own pace.<br>The key to this successfully flipped task was the students' readiness to engage in a student-centred pedagogy, which reinforced higher-order thinking and **learning**. | Redesign a course and evaluation |

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| **Shelton, LR & Hayne, AN (2017), USA** | Developing an instrument for evidence-based peer review of faculty online teaching | Online course peer evaluation tool development using the CoI framework and the Quality Matter tool | Not mentioned | N/A | The developed instrument for peer review may be used by others in academia who are seeking a more objective peer-review process. The instrument provides an innovative tool to ensure that peer review encompasses all aspects of the online teaching role. | Not clear if the tool has been tested and validated<br><br>Use the CoI to develop a new tool |
| **Swart, R (2017), Canada** | To what extent incorporating explicit critical thinking instruction and technology-enhanced learning environments (TELEs) contribute to nursing student development of critical thinking?<br>The researcher used the Practical Inquiry of CoI along with Bloom's Taxonomy (Krathwohl, 2000) and Critical Thinking indicators (Mason, 2000) to analyse the result | **Mixed-methods** research study<br>**Quantitative data included:**<br>-A commercially available critical thinking skills test<br>-Likert scale closed-ended questions in the end-of-term survey<br>**Qualitative data** collection included:<br>-Open-ended questions in the end-of-term survey.<br>-Online discussion postings | N=43 (34%) of novice, undergraduate nursing students participated in a course | Blended | Students considered the use of two forms of technology beneficial in meeting different needs and preferences, offering varied means to actively participate in learning. They valued critical thinking instruction being **intentionally aligned** with subject-specific content facilitating understanding, application, and relevance of course material. | Use the CoI concepts to analyse the results<br>No use of CoI evaluation tool<br>Redesign and use Technology and CoI |
| **Kim-Godwin, YS, Turrise, S, Lawson, S & Scott, M (2018), USA** | To explore student perceptions of peer-evaluation experiences in an online RN-to-BSN nursing research course | Descriptive cross-sectional study | 140 student nurses enrolled in a research course completed the online survey. The Revised Community of Inquiry online survey | Online | A majority of students reported their peer evaluation experience was helpful for learning (69%), and 81.8% of students indicated their writing skills improved. The findings of the study support the use of peer evaluation in online nursing courses.<br><br>The findings of the quantitative and qualitative analyses indicate the importance of TP in collaborative assignments. This underscores the critical role instructors play in providing guidance and instruction during peer evaluation. | CoI evaluation tool |
| **Padilla, BI & Kreider, KE (2018), USA** | To describe the development of an online clinical practice management course for APN students using the CoI framework | CoI framework evaluation tool<br>The analysis is not clear | 35 student nurse Advanced Nurse Practitioners | Blended | The CoI model provides an excellent framework to guide the design, examine various collaborative learning activities, and optimise "presences" for online APN students. A course designed using the CoI is useful in engaging students with quality learning activities that can prepare them to deliver care in today's complex health system. Educators should consider the use and application of social, cognitive, and teaching presence to facilitate students' | Redesign and evaluate the course |

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| **Seckman, C (2018), USA** | To evaluate the impact of interactive video (IVC) communication versus text-based feedback and found a significant difference between the 2 groups related to teaching, social, and cognitive presence | Quasi-experimental study | N=100 (40%) of nursing students enrolled in informatics course. | Online | A significant difference was found between the 2 groups indicating that IVC feedback provided a greater sense of teaching, social, and cognitive presence than text-based feedback.<br><br>Recommendations to enhance presence should focus on providing timely feedback, interactive learning experiences, and opportunities for students to establish relationships with peers and faculty. | The use of CoI framework evaluation tool |
| **Donohoe, A (2019), Ireland** | To contribute to the debate by presenting the 'Blended Reflective Inquiry Educators Framework' BRIEF which is designed for educators who wish to support students to develop their reflective abilities and reflective capacity. | Two-stage action research. | Cycle 1 focus group interviews and analysis of online posting transcripts (N=61)<br>Cycle 2<br>Semi-structured interview (N=9) | | Teaching presence and its three dimensions (design and organisation; facilitation and direct instruction) act as the pedagogical engine that drives the BRIEF, with cognitive and social presence being addressed concurrently as the educational programme unfolds | Design a reflective framework using teaching presence category |
| **Hannans, J (2019), USA** | This article discusses the importance of student learning during an online Clinical Post Conference and explores innovative technology strategies implemented that allows for audio-video–recorded asynchronous discussions | Not clear | Not specific | | Initial attempts to use VT to facilitate asynchronous online CPC have promising feedback from both students and faculty, as well as the potential to encourage reflective practice and critical inquiry.<br><br>Integration of technology in teaching creates new opportunities for innovative teaching and learning following the CoI framework. | No use of CoI evaluation tool to measure the effect<br><br>Use of CoI to integrate technology |
| **London, J. (2020), USA** | To examine the instructional methodology of text-only versus audio-only feedback in discussion boards and the subsequent impact on teaching presence and sense of community in the course room | A quasi-experimental post-test design with a comparison group | (N=202) | Online | Multiple regression statistics consistently indicated that text-only feedback was preferred by online RN-BSN students in discussion boards over audio-only feedback. Conclusion: The use of text-only feedback in online course discussion boards increases the perception of teaching presence and sense of community. | Redesign and evaluate |
| **Hardin-Pierce, M, et al. (2020), USA** | To describe an immersion model implemented in a Doctor of Nursing practice to engage students and optimise learning. Specific aims include a discussion about implementation of | An evaluative study of the DNP program<br><br>An online survey of quantitative and qualitative | N Students = ?<br><br>N Faculty = 20 | Blended | The immersion model supports the concepts of cognitive, social, and teaching presence that are the essence of the CoI framework.<br><br>Prevention of social isolation and the need for social presence are impacted through | CoI model was used to design the immersion model for DNP |

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| | the immersion model, how program evaluation was done, and opportunities for changes based on faculty and student feedback | questions to evaluate the programme | | | immersion time on-campus. Additionally, students have the opportunity to experience active learning, as supported by the CoI model, through various simulation and skills experiences while in college. | |
| **Olson, C & Benham-Hutchins, M (2020), USA** | This study aimed to describe how RN-to-BSN student and program-specific characteristics influence student perceptions of learner presence (LP) in the online learning environment | A descriptive, exploratory design | Social media snowball sampling<br>Sample (n=239) | Online | Findings describe student and program characteristics and perceptions of LP. Significant findings revealed that more collaborative assignments were associated with higher perceptions of LP; individual assignments resulted in lower perceptions.<br>This study may enhance faculty understanding of this population of students and the extent to which course activities impact students' communication and collaboration to meet online learner requirements. | Add fourth construct LP to the original CoI model<br>The author revised the original CoI survey and added a new construct called learner presence |
| **Choi, J, Lee, et al. (2021), South Korea** | To evaluate flipped classroom's feasibility in delivering respiratory system assessment content in a health assessment course and explored the changes in nursing students' perceptions regarding student-centredness and active learning environments before and after applying FC | A single group pre-and post-test concurrent mixed-methods design<br><br>The study adopted 17 items from the validated Korean-translated RCoI version<br><br>Qualitative data analysis | A convenience sample of 91 second-year undergraduate nursing students | Blended Flipped classroom | Participants' perceptions of student-centeredness significantly increased from T1 to T2. Although student-perceived teaching and social presence in their learning environment showed upward trends from T1 to T2, these changes were not statistically significant. | Redesign and evaluation |
| **Denson, VL & Shurts, LM (2021), USA** | To explore RN to BSN students' experiences with AV discussion formats | Descriptive study<br><br>Open-ended survey questions; content analysis. CoI framework core concepts used to guide the analysis | A purposive sample of 14 RN to BSN students | Online | Participants found value related to forming distinct impressions of others but expressed feelings of distress; they described issues with technology and time as barriers. Implications suggest that AV format is not supported for use in every discussion forum but may be of value if limited to select discussion forums. | Technology and CoI evaluation |
| **Liu, WC, et al. (2021), China** | To determine the effectiveness of blended learning using the CoI framework on nursing students' learning gains in | A quasi-experimental trial | 233 Chinese nursing students. Control group: traditional face-to-face (N=113). | Blended | Students in experimental group had improved student assessment of learning gains ($p = .001$, Cohen $d = 0.69$) and practical ability ($p < .001$, Cohen $d = 0.48$). Although no significant difference in overall knowledge score, experimental group students had | Redesign and evaluate |

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| | a sudden patient deterioration module | | Experimental group: blended learning course using CoI (N=120) | | better performance in application and analysis (p = .001, Cohen d = 0.45). | |
| **Merriam, D & Hobba-Glose, J (2021), USA** | To explore the use of VoiceThread to build a CoI | A quasi-experimental study<br><br>The use of CoI framework survey and Student Ratings of Instruction (SRI) evaluation tool | 163 students enrolled in an undergraduate nursing leadership course within an RN-BS curriculum<br><br>Experimental (N=97)<br><br>Control (N=66) | Online | Results indicated using VoiceThread increased student-perceived teacher excellence, supported social presence and teacher presence, and promoted a CoI<br><br>Social media (VoiceThread) provided tools and opportunities for the enhancement of learning through student engagement. | Redesign and evaluate |
| **Siah, CJ, et al. (2021), Singapore** | To examine the effectiveness of the blended learning pedagogy in a clinical skill-based module using a CoI framework. The secondary objectives were to assess the effectiveness of blended learning in improving nursing knowledge and students' satisfaction with this approach. | A quasi-experimental, pre-test–post-test design<br><br>Instrument used:<br><br>-The Blended Learning Satisfaction survey<br><br>-CoI framework survey<br><br>Pre and post-self-constructed test | 219 Year 1 nursing students who completed a clinical-based module CoI instrument used<br><br>Three presences measured | Blended | The results of the CoI survey found that teaching presence scored the highest mean, followed by cognitive and social presence. The design of the blended learning was effective in enhancing students' knowledge, but they only expressed a moderate level of satisfaction. | Redesign and evaluate using CoI |
| **Tiedt, JA, Owens, JM & Boysen, S (2021), USA** | To examine the effect of course duration (8-week versus traditional 16-week timeframes) on student engagement, student perceptions of the learning experience, and self-reported learning behaviours in a graduate online nurse educator course | Data were collected using a background information form, a course evaluation form, and the Community of Inquiry Questionnaire<br><br>Data were analysed using descriptive and inferential statistics | 8-week course (n=17)<br><br>16-week course (n=18) | Online | The findings support the traditional course duration over an intensive 8-week format because it allows for students to build a better rapport and greater student engagement with course materials and peers.<br><br>Using the CoI framework and best-practice pedagogies for online education in the design and development of online courses can contribute to greater collaboration and deeper learning. | CoI instrument<br><br>Redesign and evaluate using CoI |

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| **Waddingto, A & Porter, S (2021), Canada** | The objectives of this study were to understand how facilitators and participants engage with and use social presence in an online seminar | A qualitative descriptive design<br><br>Text-based data were collected from online discussion boards, follow up surveys, notes from conversations, email feedback, and notes from a facilitator focus group<br><br>Content and thematic analysis methods | Facilitators (n=11) and Online participants (n=14) | It is concluded that when facilitators include the use of a social presence in the design of the online learning space, in-depth engagement with online content also increases. This can happen rapidly (less than an hour) and continue for several weeks. It is deduced that a social presence enhances a sense of realness among participants of online learning, and through an increased sense of realness, engagement increases. | SP<br><br>Social presence |

### 3.3.5 Grouping of Themes

The reviewed studies showed a mix of issues in relation to using the CoI framework in nursing education. The three main themes in the reviewed literature were: 1) Using the CoI framework to redesign and evaluate online/blended courses (n=26); 2) Validation of the CoI evaluation tool (n=1); and 3) Social presence issues (n=4).

### 3.3.6 Using the CoI framework to Redesign and Evaluate Online/Blended Nursing Education

Most of the reviewed articles used the CoI framework to design, redesign, and evaluate a nursing course(s) (topic or module), or to test new technology for a course. This theme was found in more than 77% (n=26) of the manuscripts (Choi et al., 2021; Claman, 2015; Denson & Shurts, 2021; Donohoe, 2019; Glogowska et al., 2011; Goldstein et al., 2012; Hannans, 2019; Hardin-Pierce et al., 2020; Kim-Godwin et al., 2018; Kuhns, 2012; Liu et al., 2021; London, 2019; Mayne & Wu, 2011; Merriam & Hobba-Glose, 2021; Mills et al., 2016; Padilla & Kreider, 2018b; Panicker, 2017; Posey et al., 2014; Seckman, 2018; Shelton & Hayne, 2017; Siah et al., 2021; Smith & Caplin, 2012; Stephens & Hennefer, 2013; Swart, 2017; Tiedt et al., 2021; Waddington & Porter, 2021). The review will discuss the CoI in the Australian nursing literature, the use of technology and CoI, redesign and engagement using CoI, and blended learning and CoI.

#### *3.3.6.1 CoI in the Australian Nursing Literature*

The review explored only three studies using CoI in nursing education in Australia. Each of these explored the redesign of a course using the CoI framework, and then evaluated the impact on the students. Two of these studies were in postgraduate courses, while one was undergraduate.

The first manuscript, by Phillips et al. (2013), presented their experiences of integrating the CoI model and collaborative learning in blended learning for a Master of Nursing Practice program. The study reviewed the literature to establish the meaning of blended learning in higher education. The authors concluded that academics' lack of experience in using online teaching platforms could create a barrier to producing a quality online learning experience, and therefore, could have a negative impact on student engagement with the learning materials. The study also concluded that the integration of blended learning with the CoI model could enhance online technology and increase

interactions and connections between students and academics. The study did not show how they implemented the presences or how they evaluated the courses. Using the CoI framework evaluation tool could have enhanced the results and shown the actual effects of CoI presences in nursing courses.

The second study, by Mills et al. (2016), evaluated student satisfaction with the postgraduate topic, 'Research Design, Theory, and Methodology', that was redesigned using the CoI framework. The study used the CoI framework evaluation tool with 29 students and then interviewed 10 of them for the evaluation. The main finding of this study was the high satisfaction rate with the course and the online activities. The combination of the three presences in the CoI framework supported student satisfaction and learning. The students also expressed a high level of agreement on the 'Design and Organisation' sub-scale as part of teaching presence. This emphasis on the role of teaching presence in building the CoI in nursing subjects demonstrated the potential effectiveness of the CoI in transforming nursing education and increasing the development and application of knowledge in a research course. Therefore, when the CoI framework is used optimally, it is invaluable as a complete teaching method for research-related subjects in terms of both content and practice (Mills et al., 2016). The Spearman rank-order correlation used to determine the relationship between the three presences found a strong, positive correlation. This result supports the notion of the validity and applicability of the CoI framework for online/blended nursing education.

The third Australian study, by Panicker (2017), evaluated the design, implementation, and outcomes of a flipped classroom using the CoI framework. The study sample involved 202 undergraduate student nurses enrolled in an online 'Health Research and Evidence-Based Practice' subject. The study explored the students' perceptions of the redesigned flipped classroom. The qualitative data were collected from discussion posts and the end of semester student evaluation survey, while the quantitative data were collected from the learning management system (LMS) and the summative results.

The results of the study showed that the students' interactions were more significant than the school average in the course, and performance improved in terms of academic achievement and a reduction

in the withdrawal rate for the semester. The study used the CoI framework to redesign the course and to analyse the collected data in terms of the three presences. Social presence presented challenges for those students who had decided to study without engagement with other students. The author of this article embedded a new strategy to increase engagement by rewarding online discussion task participants with extra marks. The most significant aspect of the study showed the importance of teaching presence in designing and organising synchronous and asynchronous tasks to engage more students. The involvement of the educators in discussing forums and sending regular emails with feedback also kept the students engaged. Further studies of this quality are needed in nursing education, but they also need to include the validated CoI evaluation tool to inform perceptions of the three presences.

#### *3.3.6.2 The Use of Technology and CoI*

The CoI framework has been used in the design, redesign, analysis, and evaluation of the impact of adding technology to online courses, such as Skype, VoiceThread™, audio-video feedback, and the use of blogs and wikis. Stephens and Hennefer (2013) examined whether synchronous online, face-to-face contact using Skype improved support and communication for nursing students overseas and whether cultural awareness was developed for nursing students who stayed on native soil. The study collected data via online questionnaires and focus groups. The study concluded that blended learning tools such as Skype and weblogs were highly beneficial as forms of online communication and support for students undertaking an international placement. The study used a small sample of 18 students and 12 academic staff to evaluate the course. The study is not clear on how the CoI framework was used to achieve the three presences. However, three other articles tested the use of VoiceThread technology on learners using CoI framework principles in their redesigned courses. Merriam and Hobba-Glose (2021) used the CoI framework evaluation tool, finding that VoiceThread increased student-perceived teacher excellence, supported both social and teacher presence, and promoted the perception of the CoI presences. Posey et al. (2014) also applied the CoI model to construct four collaborative learning activities for nurse practitioner courses, involving asynchronous discussion, synchronous online presentations, collaborative projects, and VoiceThread software. They concluded that the CoI model was an excellent tool to ensure that online synchronous and

asynchronous discussions, collaborative team projects, and collaboration facilitated by innovative tools such as VoiceThread, fostered active learning, engagement, socialisation, and the necessary clinical reasoning and problem-solving skills for nurse practitioner education. Finally, Hannans (2019) concluded that integrating technology such as VoiceThread™ into teaching created new opportunities for innovative teaching and learning following the CoI framework. However, the limitation of Hannans' (2019) study was in not using the CoI evaluation tool to measure the effects of integrating technology.

Another group of articles (n=4) used the CoI framework to redesign and evaluate courses after adding audio-video (AV) feedback to enhance the three presences. Lindley (2014), using the CoI framework evaluation tool, compared AV feedback to text-based feedback on students' perceptions of the CoI framework among nursing students. The quasi-experimental study showed that the subjects who received the AV feedback reported higher teaching, social, and cognitive presence scores than those who received only textual feedback. The same result was confirmed by Seckman (2018), that using interactive video communication increased the sense of teaching, social, and cognitive presence more than text feedback only. In contrast, in a quasi-experimental study, London (2019) found that the use of text-only feedback on online course discussion boards increased teaching presence and a sense of community compared to audio-only feedback. Denson and Shurts (2021) found similar results in their qualitative study about using the audio-video feedback format. They found that despite the students valuing the video impressions about others in the course, they preferred text-based feedback because of feelings of distress and the technology feeling like a barrier. The implications of this suggest that the AV format should not be supported for use in every discussion forum but may be of value if limited to select discussion forums.

A quantitative descriptive study by Kuhns (2012) on the views of nursing faculty found that integrating blogs and wikis increased the academic's perception of their role in facilitating teaching and social presence. The main finding was the view of teaching presence as being very important in setting up the other two presences (SP and CP). This study used a revised CoI tool to target the educators instead of the students, as intended with the original CoI tool. Changing the instrument and the target population may have had a negative impact on the validity of the tool and may have produced biased

results in relation to the accuracy of self-evaluation of educators' own practices in the design, delivery, and evaluation of courses.

#### *3.3.6.3 Redesign and engagement using CoI*

Engagement in the online environment is linked to students' satisfaction, and increased motivation and performance, which reduces the sense of isolation (Martin & Bolliger, 2018). In this literature review, seven studies used the CoI framework to redesign online courses, with the results showing a positive impact on student engagement and interaction.

Claman (2015) used the CoI framework to redesign and evaluate a course by comparing a synchronous to an asynchronous learning platform. The synchronous platform using technology increased student engagement, and therefore, improved nursing students' learning outcomes. However, the study had only a small sample size with subject self-selection, which limited the generalisability of the results. Nevertheless, the same results were found in another two studies, by Goldstein et al. (2012) and Panicker (2017), revealing that their redesigned courses increased interaction with the instructors and other students, thus increasing student satisfaction.

A further benefit of using the CoI framework with added technology is the capacity to meet different needs and preferences in a variety of ways to enable students to actively participate in the learning process. For example, Swart (2017) used Practical Inquiry (cognitive presence) phases to analyse the online postings in a redesigned course and found that intentionally aligning the technology, critical thinking instruction, and subject content facilitated active participation in the course. This was also concluded by Padilla and Kreider (2018), who recommended using the CoI framework to design online courses because of the increase in student engagement and critical thinking, in addition to facilitating student collaboration.

However, course duration can have an impact on student engagement. Tiedt et al. (2021) compared an 8-week course to a traditional 16-week course and the effects on student engagement, finding that the longer course allowed for better building of rapport and greater engagement among students. The author recommended using the CoI framework to redesign and evaluate online courses for better collaboration and a more profound learning experience. Waddington and Porter

(2021) concluded that social presence in the design of online learning courses enhanced in-depth engagement with the content. Finally, Smith and Caplin (2012) found that redesigning a professional course using the CoI framework had a positive impact on student collaboration and also increased their satisfaction. According to the authors, CoI is useful in designing non-clinical courses for nursing education. This study did not use the CoI framework evaluation tool, and it was not clear how they used the CoI framework to analyse the results. Instead, they used a student survey of instruction to evaluate the course and the instructor.

#### *3.3.6.4 Blended learning and CoI*

The literature shows growing evidence of the suitability (Smadi et al., 2019) and positive impact of blended learning on the achievement of nursing students (Jowsey et al., 2020). This literature review has found that the redesign of blended courses using the CoI framework has a number of benefits. For example, Hardin-Pierce et al. (2020) used the CoI model to redesign a blended course to include 'immersion mode' to prevent social isolation, helping to improve social presence in the course. On-campus immersion time improved active learning and the perception of the three presences of the CoI framework. The CoI framework was also used to redesign blended courses using the flipped classroom. Choi et al. (2021) tested a redesigned course with a revised CoI evaluation tool in South Korea and found an increase in teaching and social presence compared to the pre-course test.

The use of the CoI resulted in an increase in student knowledge and gains. Liu et al. (2021) found an increase in students' learning gains and practical abilities in a redesigned blended course using the CoI framework. This was the only study from China found in the literature. In a quasi-experimental study, Siah et al. (2021) found that the redesign of blended learning effectively enhanced students' knowledge with a moderate increase in satisfaction. The students' perceptions of teaching presence ranked highest, followed by cognitive and social presence.

Glogowska et al. (2011) aimed to explore students' perceptions of blended learning modules delivered in a Continuing Professional Development (CPD) health care context in the UK. A qualitative study was conducted as part of the evaluation of the new module. Seventeen students who had experienced the modules were interviewed by telephone. Three main themes emerged

from the interviews relating to the blended nature of the learning modules, the opportunities for discussion of online materials in the face-to-face part of the module, what material should be online versus what material should be face-to-face, and the balancing of the online and face-to-face components. The research was not very detailed in relation to how the CoI framework was used in this evaluative research. The authors of this article concluded that future blended courses should allow students to come together to create a CoI. The study reported only on the qualitative data collection phase, while the use of the CoI framework was not apparent.

Shelton and Hayne (2017) developed a peer-review evaluation tool by using the CoI framework and the Quality Matters tool. This tool uses the three presences as headings to see if the course has met expectations or not. It was not clear if the tool had been tested and validated with a group of nursing educators. It was found that using the CoI as a peer-review evaluation tool was a beneficial idea that could improve the evaluation of the course if used along with student evaluations. More investigations and statistical tests are needed to validate the tool.

Donohoe (2019) used the CoI framework to develop a specific 'Blended Reflective Inquiry Educators Framework'. The reflective CoI framework uses teaching presence categories (design and organisation; facilitation and direct instruction) as the pedagogical engine that drives the framework. The developed framework offered the educators a series of 12 practical points that guided them to include reflective educational practice in online courses.

### 3.3.7 Validation of the CoI survey tool in the nursing discipline

In their review of the literature on the CoI framework, Garrison and Arbaugh (2007) pointed out that research on the CoI model primarily stemmed from business and education schools. These disciplines strongly encouraged studies that could test the generalisability of the model across other disciplines. Despite the above finding, the validation of the evaluation tool was presented in only a single study in the nursing discipline, among other health care disciplines. Carlon et al. (2012) sought to validate the CoI 34-item survey with a population of students in three health care disciplines (nursing, physical therapy, and health care administration). This study aimed to use the CoI instrument in a population of students different from that reported in the Shea and Bidjerano (2009)

study (business students in a multi-institutional study). The tool was initially developed and validated by Arbaugh et al. (2008), with participants enrolled in graduate-level courses in either education or business. Carlon et al. (2012) undertook a descriptive study to validate the constructs in the CoI survey in selected health care disciplines. The convenience sample of 330 participants returned a 46% survey response rate. The majority of the responses (83%) were from the nursing discipline, and 91% were females. The study findings matched those of Shea and Bidjerano (2009) in that the CoI was validated in the health care discipline. This study showed no difference in teaching presence scores across the three program types (nursing, physical therapy, and health information management). However, nursing scored higher on social and cognitive presence, which increased the applicability and validity of the nursing courses. The study showed that graduate or undergraduate status did not affect any measure of teaching, cognitive, or social presence, and nor did age or gender. The number of online courses completed by the students improved the social presence score among the participants, which meant that the more the students who experienced the online courses, the more their ability to perceive social presence improved. Nevertheless, the study found that the CoI model needs more investigation for the possibility of a four-factor model instead of three factors when the researcher used varimax rotation to analyse the results.

Another study in this review explored a fourth indicator (factor or presence) to improve the CoI framework (Olson & Benham-Hutchins, 2020). The author claimed that a ‘learner presence’ needed to be added to the original CoI framework. They used social and cognitive presence to calculate the new proposed presence, with the results showing that learner presence scored higher for group assignments but lower for individual ones. This study did not show how the proposed ‘learner presence’ was developed. The coding tool to generate the presences is vital and theoretically challenging (Garrison, 2014), and therefore, the addition of a fourth presence depended on theoretical and statistical justifications. The concept of the CoI framework is built around social constructivism that encourages collaboration within the community of learners. Adding a fourth presence that measures the perception of the learner as an individual opposes this claim.

Kim-Godwin et al. (2018) used a revised version of the CoI evaluation survey tool to explore student perceptions of the peer-evaluation experience in an online research course with 140 student nurses.

The study results indicated the importance of teaching presence in the collaborative assignment in guiding the peer evaluation. This indicates that the CoI evaluation tool can be used as a research instrument to understand the impact of an added online activity, technology, or task.

### 3.3.8 Social presence

Social presence represents a challenge for online educators and students. The literature shows that nursing scholars have an interest in understanding the impact of physical absence on engagement, interaction, satisfaction, and student outcomes. Four studies focused on the social presence (Cox-Davenport, 2014; Goldstein et al., 2012; Mayne & Wu, 2011; Waddington & Porter, 2021). Collectively, they concluded that explicit embedding of social presence in redesigned courses showed increased group interaction, increased the quality of interaction and the role of social presence to set the climate for the teaching and cognitive presence, and the value of presenting the individual as human and as the most prominent focal point of the course.

In a grounded theory study, Cox-Davenport (2014) sought to understand how faculty perceived and created a social presence in their online course. The researcher interviewed ten nursing academic members teaching various master nursing courses. The primary category for setting the online course climate was “Humanisation”. The research recommended that the efforts of faculty to humanise the climate led each community member to view the other members as real, thereby enabling an online social presence. These faculty members mentioned that the concept of humanisation was a central focus of the design, execution, and reflection on the success or failure of their online course. Only faculty perceptions of the online course were studied, and the researcher did not address student perceptions of course climate.

Mayne and Wu (2011) explored student perceptions and the effects of social presence on student satisfaction and interaction through a pilot study to examine the outcomes of integrating social presence strategies into an online graduate nursing course. The study had two comparison groups to examine the effects of specific instructor-initiated social presence techniques on student perceptions of social presence. A small sample size of 26 students participated in the online post-course survey. The social presence group saw significant positive effects of the intervention on

student perceptions of social presence, group interaction, and the desire to continue learning in an online format. Furthermore, the results showed an increase in student satisfaction. The results of this study did show positive effects; however, the small sample size limited its significance.

The third study, by Goldstein et al. (2012), discussed fostering social presence in a blended learning faculty development institute. This study consisted of two phases. Phase I created a peer-reviewed, new, or redeveloped course syllabus for a blended learning format by six nursing faculty members using the CoI framework. This training phase had been created as a blended course for faculty members to meet three times face-to-face over ten weeks, while the rest of the course was conducted through online discussions. Over the ten weeks, nursing faculty members were required to design or redesign a blended course for their students using the CoI as a framework. The participants were asked to take a self-rating pre and post-survey for comparison. The results showed an improvement in faculty participants' self-identified expertise with blended course pedagogy, and a statistically significant increase in most categories measured. The goal of Phase II was for the participants to use the developed, peer-reviewed hybrid course to teach the students. In this phase, data were collected from eight blended classes with a total of nearly 150 responses from the students. The students evaluated this phase to assess their satisfaction. The responses indicated that between 65% and 81% of the students felt an enhancement of, or at least no difference in, the quality and quantity of interaction with their colleagues and instructors in the blended format course. Furthermore, 80% of the students reported that they would take another blended course in the future. The overall analysis of the two phases showed the significance of social presence on student satisfaction and feelings of being 'well-connected' in the virtual class. In this study, the authors did not describe the content of the developed courses. It is also not clear if they used the CoI framework content analysis table to analyse the content of the online discussion forums. In addition, the study did not use the CoI 34-item survey developed and validated by the founders of the CoI framework.

In a qualitative descriptive study, the fourth study, Waddington and Porter (2021), included both educators and students. The data were collected from discussion boards, email feedback, and facilitator focus group notes to understand how facilitators and participants used social presence to

engage in online seminars. The results showed that the explicit use of social presence in online course design increased participant engagement and a sense of realness.

## 3.4 Discussion and Research Gap

In this scoping review, 31 primary studies were identified addressing the CoI framework in nursing between 2000 and 2021. The findings indicated a scarcity of research focusing specifically on the three presences of the CoI framework and their sub-categories, and also only a limited number of studies from Australia and Europe. In addition, the review found that only a small number of studies focused on nursing educators, particularly novices, to explore their opinions about the barriers and facilitators to embedding and adopting the CoI framework in nursing education. The review showed that despite the increased interest in the framework over the last few years, its' use and the evaluation tool are still in the early stages. However, the review showed an increased interest in using the framework to redesign online and blended courses, particularly when using technology, and also showed the effect of redesign on student satisfaction and outcomes. More work is needed in using the CoI framework evaluation tool to measure student perceptions of the three presences in nursing courses.

More attention is needed on using CoI as a theoretical framework to design and evaluate online/blended courses for nurses. Covid-19 has forced educators in all disciplines to consider online education more rigorously and robustly rather than as a new buzzword to include in curriculum development objectives. Even though health care courses have appeared incidentally in a few studies, there has been only limited research conducted explicitly on the CoI model in the context of the nursing discipline (Carlon et al., 2012). Furthermore, the nursing literature shows a lack of empirical studies in relation to using CoI to design and evaluate online nursing education.

The data explored in this scoping review highlights the lack of available explicit evidence of the applicability of the CoI framework to online/blended education. Most of the research examined student perceptions of redesigned courses, while a few studies focused on nursing educators' opinions on the process of design, redesign, and course evaluation. The voice of nursing educators is essential, as are the perceptions of students. In addition, the nursing educator's role in course

redesign, delivery, and evaluation is vital and needs to be addressed more in the literature to explore the issues that facilitate and challenge educators in online and blended learning. Furthermore, the CoI framework was applied in only three articles from Australia.

The main point to arise from this literature review is the link between using new technology and concepts in online/blended courses and using the CoI framework to guide either the organisation, delivery, or evaluation of courses. The combination of technology, pedagogy, and student needs will assist in building a better learning community, reducing feelings of isolation, increasing engagement and interaction, and increasing retention rates. Nursing education needs such a model to transform higher education and produce critical thinking nurses who can safely serve the community.

The CoI framework was shown to be a practical model for helping educators improve their skills, as demonstrated in Goldstein et al. (2012) study. The ten-week blended course for six nursing faculty members to teach them how to embed the CoI framework led to increased confidence and design skills; therefore, the educators redesigned their courses and delivered them after the training, resulting in an increase in student satisfaction. The literature demonstrated that due to a lack of educator knowledge in learning theories in general, and online learning theories specifically, they needed support and training to enhance their skills in design. The findings also indicated that engagement and interaction improved when the CoI framework was used to redesign the courses. It was also found that more engagement led to more interaction, and therefore, higher levels of satisfaction and retention in online courses.

The literature showed the exponential growth of blended learning in nursing education over the last two decades (Jowsey et al., 2020), while its suitability to nursing education has also been growing. The literature showed that nursing scholars are using the CoI model to guide their design in blended learning. Likewise, the benefits of integrating the CoI in building a learning community has been shown to increase satisfaction, while the face-to-face element of blended learning assists with the building of a sense of community among online learners.

A sense of community in online nursing courses is valuable as it leads to the creation of learning communities (Gallagher-Lepak et al., 2009). In a CoI designed course, a sense of community can

be enhanced through developing a social presence. The literature review has shown that social presence has appeared in a few nursing studies. The nature of these studies was to integrate social presence into a redesigned course and to measure or evaluate the effects of this integration on student satisfaction and outcomes. It was noted that student perceptions always welcome the integration of more social presence in courses, because this helps to reduce stress and feelings of isolation and builds community for peer support.

On the other hand, the literature review has shown an absence of studies focusing on the cognitive presence and practical inquiry phases using the CoI framework in the nursing education literature. Also, teaching presence was mentioned in a few studies, but has not been studied in any great depth. In addition, the micro-components of the CoI framework should be studied empirically to improve the framework from the nursing education point of view. The literature shows that nursing researchers did not use the CoI framework evaluation tool to measure the effects of embedding and integrating the CoI framework into their redesigned courses. This indicates that more work is needed on using the CoI framework in online nursing education, while a focus on using the framework evaluation tool is needed to improve the framework.

## 3.5 Chapter Summary

Chapter three reviewed the current literature on online and blended learning in the nursing context. The review explored the importance of focusing on pedagogy and technology to increase student satisfaction, engagement, and interaction in online/ blended courses. The CoI framework was shown to be a practical model to design, deliver, and evaluate online/blended nursing courses.

The current literature indicates that despite the prolific growth in online courses for nurses, more empirical studies are needed to support the optimal approach to designing and evaluating online and blended courses. The literature supports the claim that the CoI framework positively affects student outcomes, satisfaction, perceptions, and retention in the blended learning environment. In contrast, there is only limited literature reporting on the use of the CoI framework in the nursing literature. The existing nursing literature lacks empirical evidence regarding the use of the CoI framework to design and evaluate online and blended courses.

# CHAPTER FOUR: METHODOLOGY, METHODS AND STUDY DESIGN

## 4.1 Introduction

In the previous chapter, the research problems were explored, and the literature reviewed. The limitations of the research examining the CoI framework in the discipline of nursing were evident (Carlon et al., 2012). Despite health care courses appearing incidentally in a few studies, the Australian nursing literature lacks both empirical and descriptive research examining this framework. This chapter aims to introduce the methodological approaches used in the study, including an introduction to the pragmatic paradigm and how it links to the mixed-methods research (MMR) approach, the explanatory sequential mixed-methods research design, that directs this study. This chapter will also explain the two phases of the study in detail. For phase I of the study, sampling, ethical considerations, recruitment, survey tool development, the validity of the survey tool, data collection, and data analysis will be discussed. For phase II, sampling, ethical considerations, recruitment, interview schedule development, validity, and reliability of the interview schedule will be discussed.

## 4.2 Research Methodology

This research investigates the applicability of the Community of Inquiry (CoI) framework for online/blended nursing education in Australia and explores how Australian nursing topics and course coordinators design and evaluate their courses. The researcher used a pragmatic, explanatory sequential mixed-methods approach (Creswell & Creswell, 2017).

### 4.2.1 Pragmatic paradigm

According to the Cambridge online dictionary, the word ‘pragmatic’ means: “Solving problems in a sensible way that suits the conditions that exist now, rather than obeying fixed theories, ideas, or rules” ("Pragmatic," accessed 16/04/2019). The pragmatist favours ‘what works’ to answer an inquiry rather than the absolute ‘true’ or ‘real’ (Frey, 2018). Earlier, Teddlie and Tashakkori (2009) described pragmatism as a paradigm that exposes concepts such as ‘truth’ and ‘reality’ and concentrates instead on ‘what works’ as the truth to answer the research question. Pragmatism rejects the

paradigmatic dichotomy of either only objective or subjective and inductive or deductive research design and acknowledges the value to the researcher of the role of interpretation.

From this definition, the pragmatic paradigm in research places the research problem as the central goal and applies any approach to understanding the problem. In doing so, the paradigm does not follow a fixed theory to answer the research question, but rather, a pragmatic pathway to solving the inquiry according to any available approach collectively. The core definition of pragmatism is a philosophical understanding of the worldview that underpins an idea or proposal as true, if it works suitably, that the meaning of inquiry is to be found in the practical consequences of accepting it (Ormerod, 2006), and that impractical ideas are to be rejected.

The initial pragmatists, such as Charles Sanders Pierce (1839-1914), a logician, mathematician, and scientist; William James (1842-1910), a psychologist and moralist with a medical degree, and John Dewey (1859-1952), argued that the worldview could be seen from a third position different from which the interpretivist or post-positivist would see the world (Creswell, 2009). A pragmatist worldview would accept multiple truths and realities.

Dewey continued to develop the pragmatism application to the daily issues of education and politics (Ormerod, 2006). The core concept of Dewey's philosophy is the 'theory of inquiry'. According to Dewey, to form 'knowledge', one must start with 'inquiry' in order to reach an 'action'. For example, Dewey perceived individual behaviours as somewhat spontaneous actions, significantly driven by a desire. When this desire is obstructed, an action lacks direction and becomes unsystematic and problematic (Willower, 1994). Once one recognises this obstruction, the inquiry process commences. Dewey described the inquiry as the transformation of a complicated and unclear position into one that is adequately clear to necessary claim or logical action (cited in Ormerod, 2006). For Dewey, the outcome of the inquiry is knowledge (Willower, 1994). Consistent with Dewey's view, Charles Sanders Peirce (1958,cited in Shields (2003) saw the move from inquiry to attaining knowledge as a process of moving from doubt to belief, as Peirce stated: "Doubt is an uneasy and dissatisfied state from which we struggle to free ourselves and pass into the state of

belief; while the latter is a calm and satisfactory state. The irritation of doubt causes a struggle to attain a state of belief. I shall term this struggle inquiry" (p. 99).

Dewey coined the term 'learning by doing'. He viewed knowledge as an instrument that a person uses to assume an action rather than an object that needs to be believed (Ormerod, 2006). He also considered intellectual inquiry a self-correcting procedure that continuously links to the previous experience (Morgan, 2014; Ormerod, 2006). Also, Dewey perceived inquiry as a process of problem-solving based on the scientific method. Inquiry brings unity to thought and action (Garrison, 2013). Inquiry, however, cannot proceed effectively unless the experiment manipulates or changes reality in specific ways. From this, if someone wants to know something, they must inquire or search. This inquiry aims to use knowledge as a tool to decide on the action to be taken. Furthermore, to justify the pragmatic approach to forming knowledge, Dewey opposed the positivists by stating that theories and models are only judged by their consequences and their problem-solving power (Frey, 2018). They need to continually test and alter one's perception of the truth through inquiry.

In this study, the researcher believes that Dewey's pragmatic paradigm is a suitable framework to study the research problem. Dewey's pragmatism overcomes some of the dualisms that continue to suppress discussion about social and behavioural research (Biesta, 2010). Pragmatism accepts knowledge as objective, subjective, or both (inter-subjective). This research will accept the objective data from Phase I quantitative results, but at the same time will accept the subjective data from Phase II, where the researcher interpreted the interviewees' transcripts according to his understandings and interpretations. In this study, the relationship between the quantitative (objective) and the qualitative (subjective) is that the first will inform, explain, and guide the latter in an explanatory sequential mixed-methods design.

In the pragmatic paradigm, to gain knowledge, we need action. However, although the action is a necessary condition for knowledge, it is not enough. We also need thinking and reflection. The combination of reflection and action leads to knowledge. This study uses action (the data collection tool process in both phases), thinking, and reflection (data analysis of the two phases of the research) in order to gain a deep understanding of the research problem.

Pragmatism also promotes the idea that reality is actively created as individuals act in the world, and it is thus ever-changing based on human experience and oriented towards solving practical problems (Weaver, 2018). This research will consider the creation of reality through the interaction between the researcher and the data to form new knowledge and experience. These knowledge and experience claims are not absolute and will always be open to review (fallibilism).

The acceptance of fallibilism in pragmatism leads to viewing truth, meaning, and knowledge as tentative and as changing over time. What we find in our research should be viewed as provisional truths (Johnson & Onwuegbuzie, 2004). This research is not intended to create absolute truth but will consider the complexity of the issues associated with the study and how these issues might change over time. Moreover, as pragmatism embraces some form of naturalism, this research will not change or manipulate the environment of the study but instead will study it in its natural setting without interference from the researcher. This research attempts to examine the CoI framework to see if it is applicable to online/ blended learning in the nursing context in Australia. This exploration stems from Dewey's beliefs that theories and models should always be examined and checked to see if they alter perceptions of truth through inquiry. Continuous inquiry is one of the epistemological assumptions of Dewey's pragmatism to create new knowledge from previous experience (Ormerod, 2006). This study will use the researcher's and the participant's experiences in the field of design and evaluation of online/blended learning to create a deep understanding of this process.

Furthermore, this study approaches the analysis of the data through a CoI theoretical framework and will use the core concepts of CoI (the three presences) as a lens to guide the analysis of the data in both phases. Finally, pragmatism accepts scientific and any other method to explore the truth. Hence, pragmatism is a suitable paradigm for mixed-methods research, as will be explained in Section 4.2.2 below.

### 4.2.2 From Dewey's pragmatism to social constructivism and Community of Inquiry

Using Dewey's pragmatism to understand the research problem is predicated on the fact that the research subject in this study is the CoI framework and its applicability to online/blended learning in nursing. The CoI framework is deeply rooted in Dewey's work, as will be explained in the following paragraphs.

As mentioned earlier, Dewey made 'inquiry' fundamental to his philosophy and educational practice. An 'inquiry' is a connection between any problem and its solution in order to produce deep learning. This problem-solving process, according to Dewey, should be based on the scientific method (Garrison, 2013). Inquiry unites thought and action; in other words, the reflective process in solving a problem becomes evident through proper inquiry. Dewey talked about the concept of reflective thinking and how it is embedded in the inquiry process.

According to Dewey, any experience should be an educative one. Thus, reflective thinking means that we learn and educate ourselves only if we connect between what we do to things and the consequences of those actions. We will only reach an understanding if we 'think and reflect' on that experience in order to form our own knowledge and perceptions, and so on. For example, if a child touches a hot object, (s)he will experience pain. It will not be considered that the child has formed an experience unless (s)he connects the pain to the touching of the hot object. Only then will (s)he form an experience related to touching hot objects and the consequences of that action.

Dewey believed that education is the interaction between personal interests and social knowledge (Garrison, 2011) and that inquiry in real life is connected to other members of the community. Dewey's philosophy stressed that the construction of personal meaning is a social and collaborative effort (Garrison, 2013). From here, the educational community is essential to the reflective thinking process. The relationship between inquiry and community is that the 'problem' is a spark that supports or initiates the community to form, which motivates the inquiry. This happens in an educational community with reflective thinking, such as in a classroom, for example. Dewey (1959)

considered that the educational experience should blend the interests of the individual and society and that individual development is dependent upon community (cited in Swan et al., 2009).

The constructivist approach to learning is built around the ability of the individual to create meaning from the new experience by scaffolding upon previous knowledge and experience (Garrison, 2013). The different roots of constructivism are beyond the scope of this research, but what is important here is Vygotsky's work on social constructivism. This idea is consistent with Dewey's work on inquiry and community (Wells, 2000). Vygotsky viewed the individual and society as mutually interdependent. Language and discourse are important to 'share meaning' and 'negotiate' common understanding within the educational community. So, learning in the educational community must be collaborative and facilitated through conversation (verbal or written) around the problematic event (inquiry) to produce new knowledge. Knowledge creation and co-creation in the two worlds (the individual and the community) happens through interaction, where the two worlds become unified. Dewey argued that personal and social experiences are inseparable and that meaning is constructed through interaction between and among learners (Garrison, 2013). The best analogy to explain the notion of 'inquiry', 'community', and the 'interaction' is the famous old story of the three blind men describing an elephant. Each blind man describes the elephant according to his understanding of the part that he touches. The limited perspective of describing the elephant (such as a 'fan' for touching the ears and a 'rope' for touching the tail … etc.) made the individual resolution (finding the correct answer) unreasonable. Only through the 'interaction', 'discourse', 'reflection', and 'thinking' inside the 'community' will an answer be constructed to the 'inquiry' or 'problematic event'. It is the power of the collective minds that creates new knowledge and forms new experience.

As a 'social constructivist', Vygotsky also explored the notion of the 'zone of proximal development (ZPD). He assumed that the learner could learn/achieve certain things without assistance. The same learner reaches a point where they need others to help them understand and expand their learning experience (Wells, 2000). The essence of ZPD is that humans can learn more in a social environment.

From the above, as a concept of learning, CoI is embedded in the work of Dewey in relation to ‘inquiry’ and ‘community’, and the work of Vygotsky on ‘social learning’ and the ‘ZPD’. The idea of the CoI has recently been applied to the school classroom. Lipman (1991) introduced the concept of the school classroom as a ‘Community of Inquiry’ that can scaffold upon the learners' knowledge, which can be facilitated via interaction and discourse. The learners in such a model learn from each other, their teacher, and the learning materials. Garrison, Anderson and Archer (2000) have taken this concept of ‘Community of Inquiry' in applying it to online and blended learning in higher education.

Garrison et al. (2000) viewed the online and blended learning modes as perfect environments to form an educational community in which members are respected and participate equally in forming new knowledge related to their inquiry. At the time of their seminal paper (2000), online and blended learning was new, and a theoretical framework to study the new phenomenon of online learning was missing. The online CoI consists of three critical components: social, cognitive, and teaching presence to design and study online courses (Garrison et al., 2000). The CoI framework assumes that learning occurs within the community through the interaction of these three core elements. According to its founders, the framework was built on social constructivist principles, where personal experience collaboratively joins with the shared world within the educational community (Garrison et al., 2000). More detail on the CoI framework is mentioned in Chapter two.

### 4.2.2 Mixed-methods research and the link to pragmatism

Mixed-methods research (MMR) is an approach to inquiry that combines or incorporates both qualitative and quantitative forms. The idea behind integrating two types of methods is to capture the advantages of both and to allow the data to complement each method (Ivankova et al., 2006). Creswell (2015, p. 2) defined MMR as:

> an approach to research in the social, behavioural, and health sciences in which the investigator gathers both quantitative (closed-ended) and qualitative (open-ended) data, integrates the two and then draws interpretations based on the combined strengths of both sets of data to understand the research problem.

Creswell (2009) argued that MMR is not simply combining data collection between the two approaches but also involves a number of philosophical assumptions. The integration of these approaches is the basis of the philosophical framework of the pragmatic paradigm (Tashakkori & Teddlie, 2010).

Creswell and Creswell (2017) described how pragmatism provides the philosophical basis for MMR. They described the pragmatic paradigm as one which does not favour any specific form of philosophy and reality. The same view applies to MMR. MMR operates by permitting the researcher to choose freely from both quantitative and qualitative methods in their research. Hence, the researcher has the ability to choose the research methods, techniques, and procedures that serve their objectives. Pragmatism does not see the world as absolute truth but accepts the truth that is functional at the time. Likewise, MMR uses different approaches to collect and analyse data, provided they are used to understand a research problem better and generate new knowledge. According to the pragmatic view, this knowledge is about the relationship between actions and consequences, rather than a world 'out there' (Biesta, 2010). In other words, this view looks at the 'what' and 'how' of the research. Similarly, MMR needs to establish a purpose and rationale for why the quantitative and qualitative data need to be combined.

From the above, pragmatism opens the gate to multiple methods, different worldviews and assumptions, and diverse data collection and analysis forms. Hence, pragmatism as a paradigm is suitable for understanding MMR. The rationale for mixing both kinds of data within a single study is grounded in the fact that neither quantitative nor qualitative methods are enough by themselves to capture the trends and details of a situation. The final goal of mixing is to find an answer to the research question that produces new knowledge (Johnson & Onwuegbuzie, 2004; Schoonenboom & Johnson, 2017). Creswell and Creswell (2017) suggested that the rationale for the choice of mixed-methods as an approach can be viewed at three different levels:

- **General level:** the mixed-methods approach is selected to draw upon the potential of both qualitative and quantitative data while minimising the limitations of both approaches.

- **Practical level:** the mixed-methods approach provides a multifaceted research approach to answer complex research questions. It is attractive to researchers who like to challenge new research procedures.
- **Procedural level:** mixed-methods can provide a complete understanding of the research problem and questions; for example, clarifying the quantitative results with a follow-up qualitative data collection and analysis or vice-versa.

Greene et al. (1989) reviewed a number of mixed-methods studies and identified five broad purposes or rationales for using MMR:

- **Triangulation**: which seeks to merge different results from different methods to increase the validity of constructs. This procedure is followed mainly in convergent design and has not been used in this study.
- **Complementarity**: which seeks elaboration, enhancement, illustration, and clarification of results from one method with the results from the other method. This increases the interpretability, meaningfulness, and validity of the constructs being used. For example, this research used qualitative data from Phase II to complement and clarify the data from the quantitative Phase I.
- **Development**: which seeks to use the results from one method to develop or inform the other method, to develop validity and trustworthiness. This research used the results from Phase I to inform and develop the interview schedule for Phase II.
- **Initiation:** seeks the discovery of contradiction; new perspectives on frameworks result from one method with questions or results from the other method. Hence, the thematic analysis of the qualitative data using CoI as a lens uses the three CoI presences to find contradictions or new insights arising from Phase I results.
- **Expansion:** seeks to broaden the breadth and depth of the inquiry. An example is using quantitative data to measure the agreement of nursing academics on the applicability of the CoI framework and the qualitative data to expand on ‘why’ and ‘how’ nursing academics design and evaluate their courses.

### 4.2.3 Explanatory sequential design

Creswell and Creswell (2017) identified three core mixed-methods designs: convergent design, exploratory sequential design, and explanatory sequential design. This research used an explanatory sequential design. This method involves a two-phase design in which the quantitative data was collected first, followed by the qualitative data (Creswell, 2015). The intent was to explore how applicable the concepts of the CoI framework were to Australian online/blended nursing education by asking nursing academics directly in a quantitative survey in Phase I. The survey yielded quantitative results from a sample, followed by an in-depth explanation of the results in Phase II (see Figure 8). The aim was to use the qualitative outcomes to further clarify and interpret the results from the quantitative phase (Creswell & Creswell, 2017; Schoonenboom & Johnson, 2017). For instance, a questionnaire may be used to gather quantitative data from a larger group. The participants of that group may subsequently be selected for interviews where they can explain and offer insight into their survey responses. The rationale for this approach is that the quantitative data and the subsequent explanation in Phase II delivers an overall conception of the study problem. The qualitative data and their analysis explains and clarifies the numerical outcomes by discovering participants' opinions in greater depth (Ivankova et al., 2006).

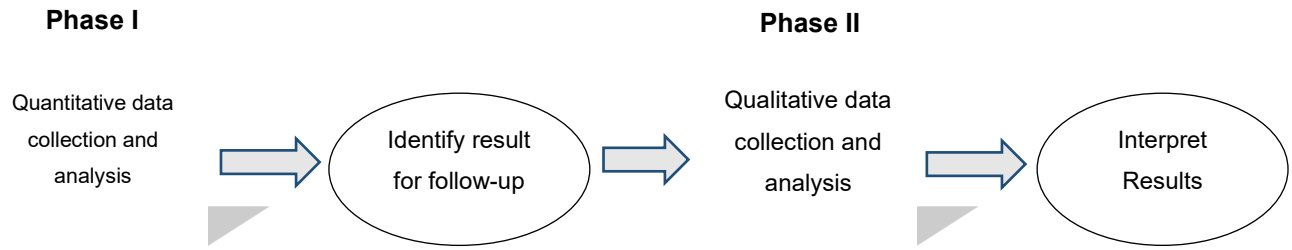


Figure 8: Explanatory sequential design adapted from Creswell and Creswell (2017).

### a) Data Collection

Data collection was divided into two phases, with convenience sampling used in the first quantitative phase, and purposive sampling in the second qualitative phase Creswell and Creswell (2017).

### b) Data Integration

Data integration in MMR purposefully necessitates bringing together the quantitative and qualitative approaches such that their combination leads to a greater understanding of the topic (Creswell & Creswell, 2017). According to Fetters et al. (2013), integration happens at three levels:

- **First**, integration at the study design level refers to the conceptualisation of the study and the type of design implemented to investigate the research topic. This study will use a sequential explanatory mixed-methods design. The researcher will first collect and analyse the quantitative data, from which the findings will inform the qualitative data collection and analysis.
- **Second,** integration at the methods level is the integration to occur by linking methods of data collection and analysis (Creswell & Plano Clark, 2011). Linking occurs in many ways: (1) connecting; one set of data is linked with the other via sampling; (2) building; occurs when results from one data collection procedure inform the data collection procedure; (3) merging; occurs when the researcher brings the two databases together for analysis and comparison; and (4) embedding; occurs when data collection and analysis are linked at multiple points (Fetters et al., 2013). This research uses linking via building, where the data from Phase I will be used to build, develop, and inform the interview schedule to be used to collect the qualitative data to explain the quantitative results (refer to section 7.1 and Table 20).
- **Third**, integration at the interpretation and reporting level. There is a different approach at this level: (1) integrating through narrative; the researcher describes the qualitative and quantitative findings in a single report or series of reports; (2) integrating through data transformation; where the data are converted into the other type of data (e.g., qualitative to quantitative); and (3) integrating through joint displays; the data are displayed together through visual means to draw out new insights beyond the information gained from the

separate quantitative and qualitative results (Fetters et al., 2013). This research will use the narrative approach in reporting, and specifically, the staged approach in which integration occurs in multi-stage mixed-methods studies, and the results of each step are reported in stages as the data are analysed and published separately (Creswell, 2015; Fetters et al., 2013). Also, in this research, the findings from both phases will be organised as an integrated results table as a joint display to allow for a side-by-side comparison to provide evidence to clarify the results from both phases. The rationale for integrating the two phases is to allow the researcher to verify the results and to enhance the validation of the results.

**c) Validity**

According to Bernard and Bernard (2013, p. 45), validity is "The accuracy and trustworthiness of instruments, data and findings in research". Different types of validity have been established in this study. In Phase I, the questionnaire used to collect the data was divided into three sections. The second section of the questionnaire, the applicability of the CoI framework, were adapted from the original validated CoI framework survey tool designed by Arbaugh et al. (2008). Arbaugh et al.'s. (2008) survey was designed to investigate student perceptions of cognitive, teaching, and social presence in online courses, and to explore the inter-relationships among the three presences. The adapted survey tool designed for this phase was intended to investigate nursing academics' perceptions, rather than student perceptions, of the applicability of cognitive, teaching, and social presences in online/blended courses. The face and content validity of the tool were established via a panel of expert reviewers who had extensive experience of course design and topic coordination in an Australian school of nursing. Based on the reviewers' comments, unclear and vague questions were revised, and complex items reworded. In addition, ineffective and non-functioning questions were discarded altogether. The established validity was deemed adequate given the aims of this phase.

In Phase II of this study, the validity of the interview schedule developed was to explain the results of Phase I (please refer to section 4.2.3 for more details). The integration process between Phase I and Phase II informed the design of the interview schedule. The initial interview schedule was peer examined by the supervisors of the researcher to check for ambiguity and unclear questions, after

which the researcher interviewed a topic (course) coordinator in a pilot interview. The recorded interview was listened to by the supervisors and feedback was given to the researcher on the style of the interview and the prompting questions to be asked to gain a deeper insight into the research problem. The feedback and notes from the pilot interview were recorded. This is considered as a face and content validity assessment of the interview schedule that was used to collect the data in Phase II.

### 4.2.4 Why Explanatory Mixed-Methods Design for This Study?

This study used the pragmatic explanatory sequential mixed-methods approach due to the complexity of the issues involved. According to Greene et al. (1989), the purpose of the MMR approach is that the research pursues complementarity of the results from both phases. The literature review identified limited empirical research in the nursing discipline about the CoI framework within the Australian context. Hence, a national quantitative online survey was used to explore the applicability of this framework to online/blended nursing education in Australia, and to ascertain nursing academics' awareness and knowledge of the CoI framework.

Another purpose of using MMR was to provide an expansion of the results by broadening the breadth and depth of the inquiry. Online/blended education is a new and complex area to research. In higher education, there exists a range of stakeholders involved in the process of online/blended learning, including students, nursing academics, education providers, and content and technical support staff, which makes this area of study quite complex. The other rationale for using MMR in this study was the lack of literature in the area of CoI and its applicability to online/blended nursing education. Furthermore, CoI is a relatively new framework and the researcher did not know what the perceptions of nursing academics in Australia were about this framework.

An explanatory sequential mixed-methods design was deemed appropriate for the study. The data from Phase II was used to complement, elaborate and expand upon, illustrate, and clarify the results from the quantitative phase, with the qualitative results being used to increase the interpretability, meaningfulness, and validity of the constructs used by both capitalising on the inherent strengths of both methods and counteracting the inherent biases of each.

The purpose of this study was to explore the applicability of the CoI framework for blended and online nursing education in Australia. The study has also explored the knowledge of Australian nursing academics in relation to the CoI framework, seeking their opinions on the applicability of the three core concepts of the CoI to online nursing education. Furthermore, this research has explored how CoI can be used to promote better online topic design and implementation to improve student learning. The researcher's interest in the CoI framework guided the idea of evaluating the applicability of the framework. The review of the literature revealed the limited research examining the CoI framework in the discipline of nursing. Hence, a study such as this was needed to explore and increase understanding of the design of blended/online nursing courses using the lens of the CoI framework. In this regard, pragmatism can contribute to social research, whether the research uses qualitative, quantitative, or mixed-methods (Morgan, 2014). In other words, pragmatism forms the paradigm or the accepted model that directs the research efforts to understand the reality of the problem, despite the method used to collect the data. Yvonne Feilzer (2010) indicated that pragmatism philosophy supports mixed-methods research to accept the singular and multiple realities that are open to empirical inquiry and places itself to explain practical problems in the real world at the same time. Likewise, the researcher is free of the limitations forced upon them through the exclusive use of quantitative or qualitative data and instead takes advantage of both.

Using the explanatory sequential mixed-methods approach enhances understanding the research problem's complexity and explores and builds on the participant views with other data. It also avoided the potential bias of a single research method while providing both quantitative and qualitative strengths. MMR often provides a stronger base of evidence for conclusions and an increased opportunity to generalise results and improve validity (Greene et al., 1989). Also, this approach looks at issues from a diversity of viewpoints and assists with exploring a broad, varied, and complex range of questions.

The explanatory sequential mixed-methods design provided the flexibility required to adapt Phase II to the findings of Phase I; in this case, the national online survey on the applicability of the core constructs of CoI. The analysis of Phase I was used to formulate the questions and issues around the phenomena being analysed in Phase II. Given that this study focused on an issue that had been

under-investigated, a pragmatic sequential mixed-methods research design was deemed appropriate. The use of mixed methodologies can reduce or eliminate bias, improve the understanding and exploration of the phenomena being researched, and improve validity (Creswell, Plano Clark, & Garrett, 2008). A graphical representation of the mixed-methods procedures used in this study will assist the researcher and the reader to visualise the action plan of the overall process; see Figure 9: Graphical presentation of the steps of this study.

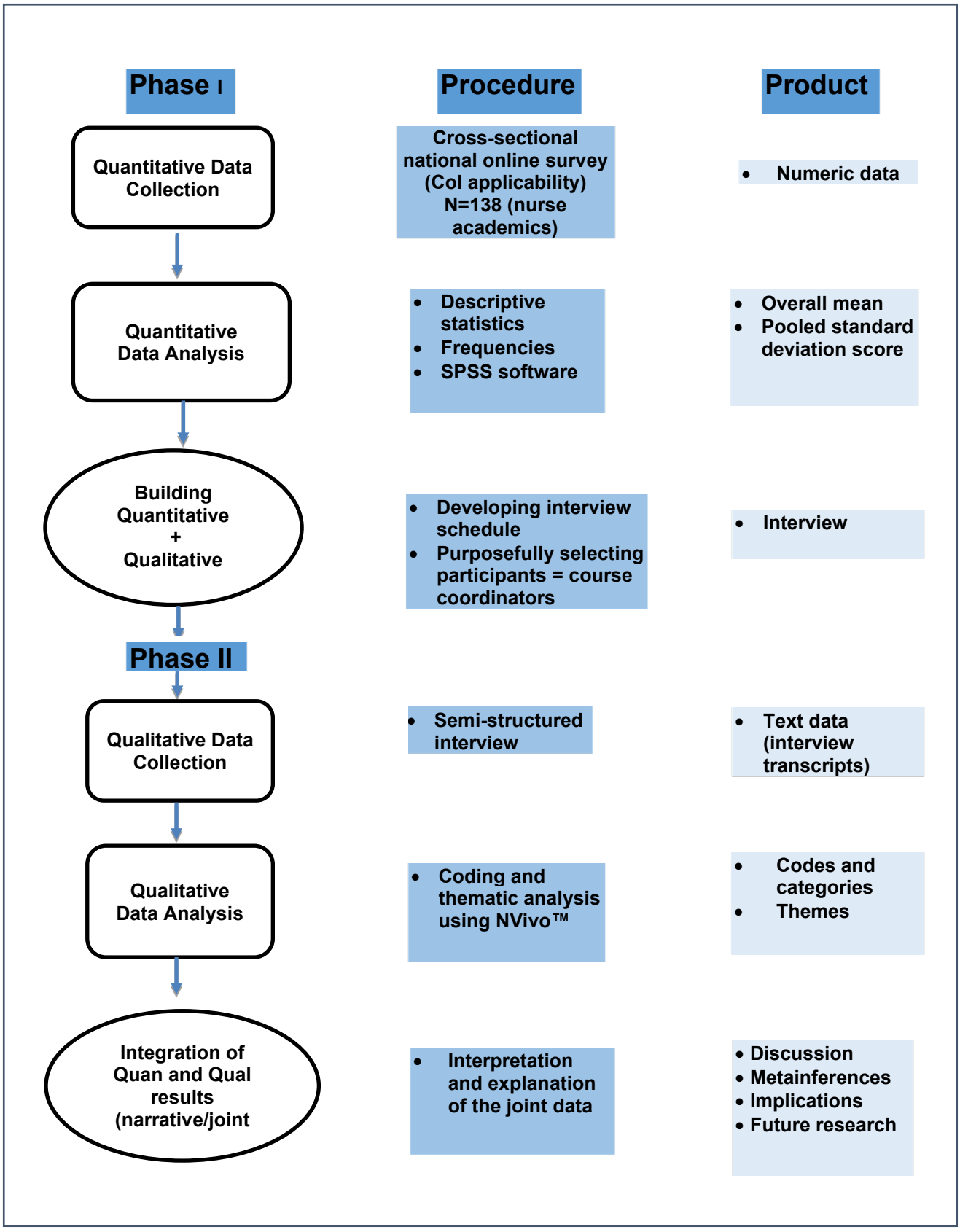


**Figure 9: Graphical presentation of the steps of this study. Adapted with modification from Ivankova et al. (2006).**

## 4.3 Research Methods and Design

### 4.3.1 Phase I: Quantitative Research Methods

Phase I aimed to explore the applicability, awareness, and knowledge of Australian nursing academics about the CoI framework. The following sections of this chapter will explain the sample and setting of the study, the inclusion and exclusion criteria, the process of developing the online questionnaire, the data analysis, and the integration and connection of Phase I and Phase II results.

#### *4.3.1.1 Selection of Respondents*

This phase aimed to recruit Australian nursing academics with experience in designing, implementing, and evaluating online/blended courses for undergraduate nurses. A non-probability purposive sampling technique was used to invite potential participants. Polit (2001) suggested that in this approach, the researcher selects individuals who have particular expertise and knowledge about the issues being researched.

Survey respondents were selected using the Commonwealth Register of Institutions and Courses for Overseas Students (CRICOS) (Australian Government, 2016). The reason for using the CRICOS database was because it is a comprehensive list of all courses provided to students in Australia and was convenient for identifying higher education providers who offer a bachelor degree in nursing in Australia. Furthermore, it was easily accessed online. Of the 34 identified universities, 31 schools of nursing had academic staff email addresses available on their websites at the time of the search. The publicly available email addresses of all nursing academics were collected. This process yielded 1,201 email addresses.

After approval for Phase I by the ethics committee (see Appendix 1), the potential participants were approached directly with an email introducing the researcher project, a letter of introduction and an information sheet about the study with links to SurveyMonkey™ to commence the survey. Consent was implied by the participants' completion of the survey.

#### 4.3.1.2 *Inclusion and Exclusion Criteria*

The following inclusion and exclusion criteria were used. Midwifery academics were excluded from participating to focus the study on the research question of the applicability of the CoI framework to nursing education. Table 9 below outlines the criteria for recruitment.

**Table 9: Inclusion and exclusion criteria**

| Inclusion criteria | Exclusion criteria |
|---|---|
| • Full- or part-time<br>• Teaching or taught an online and/or blended course for undergraduate nursing students.<br>• Publicly available email addresses on the university website. | The following in each school:<br>• Midwifery teachers<br>• Non-nursing staff<br>• Academic in the school with a non-teaching role, e.g., full-time researcher<br>• Administrative staff<br>• Adjunct staff<br>• Casual staff |

#### 4.3.1.3 *Ethical Considerations*

The research project had a separate ethics application for each phase of the study. Phase I was approved by the University Social and Behavioural Research Ethics Committee, Application #7151. An email was sent to each of the selected academic staff members introducing the research project and the objectives of the study. No identifying information was sought from the participants, who were also informed that any information they provided would be treated in the strictest confidence and that none of them would be individually identifiable in the resulting thesis, report, or other publications. They were also given the freedom to discontinue the survey at any time. The IP address was not collected through the online survey tool to ensure the anonymity of the participants.

#### 4.3.1.4 *The online survey response rate*

Online surveys tend to achieve lower response rates than paper-based surveys. For example, in a review of the literature comparing response rates between paper-based and online surveys, Nulty (2008) found that most online surveys achieved response rates 23% lower than paper-based ones. Porter and Whitcomb (2007) reported that response rates of between 5% and 12% were common in online surveys. In Phase I, 1,201 emails were sent to potential participants, with only 555 being opened. A reminder email was sent four weeks after the initial email, as such reminders tend to boost

response rates in online surveys (Nulty, 2008). In total, 138 participants completed and returned their survey with a response rate of 24.8%. The researcher made the decision to calculate the response rate based on the 555 opened emails. The rest were either delivered to the receiver's junk mail folder, bounced back, or were quarantined by the IT system of the recipient. For this reason, they were considered as not having been sent.

#### *4.3.1.5 Phase I survey instrument*

A review of the literature was carried out on the applicability and awareness of the CoI framework in nursing education to inform the development of the survey tool. The survey consisted of three sections with a total of 28 questions covering: 1) demographic information, 2) the applicability of CoI presences, and 3) awareness and knowledge of CoI. Please see Appendix 2 for Phase I survey instrument.

The first section, questions 1-12 of the survey, requested demographic data including years of academic experience, the participants' involvement in course design, preferred and current teaching mode, their current role, and the topic content they usually taught. Participants were also asked about their institutional support for online learning and their theoretical frameworks to design and evaluate online courses.

The second section, questions 13-20 of the survey, asked the participants via Likert scale questions for their opinions about the applicability of the three core elements of the CoI framework (social, cognitive, and teaching presences). These questions were adapted from the original CoI framework survey tool designed by Arbaugh et al. (2008). The survey tool was designed to investigate students' perceptions of cognitive, teaching, and social presence in online courses and explore the relationships among the three presences. The adapted survey tool designed for this project was intended to investigate academics' perceptions, rather than student perceptions, of the applicability of cognitive, teaching, and social presences in online courses. The three presences of the CoI framework were defined for the participants before they were asked to rate how the components of each presence applied to online nursing education. They were not provided with background information about the overall CoI framework, and this strategy was intended to reduce any influence

on the responses about the value of the CoI itself. The participants were asked to rate the applicability of each presence to online education. Each question included an optional comment box for further elaboration of the participants' answers if they wished.

The third section, questions 21-28 of the survey, probed for participants' prior familiarity with the CoI framework. This section asked them to describe the CoI framework in their own words and to indicate whether they used it to design and evaluate their courses. Skip logic was used to shorten the survey if the participants were not familiar with the CoI framework. Evans and Mathur (2005) describe branch logic as a strategy in which participants reply only to the questions that apply specifically to them.

#### *4.3.1.6 Statistical analysis*

The data were analysed using descriptive statistics for multiple-choice questions. The mean score, standard deviation, aggregated mean score, and pooled standard deviation of the Likert scale responses was analysed and ranked according to their perceived importance to the participants (Cohen, 1988).

#### *4.3.1.7 Qualitative content analysis of open-ended questions*

The third section of the online survey contained open-ended questions after each Likert-scale question. The optional comment box gave the participants the chance to elaborate more on each answer if they wished. The researcher analysed the open-ended qualitative responses using thematic analysis. The data were descriptively coded, and the central themes were grouped into categories using the CoI framework as a lens to guide the coding. The thematic analysis used for the coding of the semi-structured interviews in Phase II was the same technique used here (refer to the thematic analysis section in Phase II for more detail).

#### *4.3.1.8 Building the interview schedule for Phase II*

The results from Phase I were used to construct the interview schedule that was used in Phase II. The interview schedule aimed to elicit data that could explain Phase I results in greater depth to gain more understanding and an explanation of the results in the form of themes. In this regard, Braun et al. (2019) described the generated themes as capturing meaning by combining data that may appear

unrelated. The qualitative data in the form of themes can explain entities and ideas, going deeper than just the surface, while at the same time showing the explicit meanings that are built from more isolated ideas (DeSantis & Ugarriza, 2000).

### 4.3.2 Phase II: qualitative research methods

The qualitative data collection aimed to explain the results from Phase I and add an in-depth understanding of the design and evaluation of online/blended nursing courses. This phase was considered essential to gain insight into the process of developing, designing, delivering, and evaluating online/blended courses from the perspective of the topic (course) coordinators.

#### *4.3.2.1 Selection of respondents*

This phase used purposive sampling from several nursing schools/colleges in Australia. The use of purposive sampling aims to select experts in the field and who will best help the researcher understand the research problem (Creswell & Creswell, 2017). According to Tong and Craig (2018), purposive sampling allows the researcher to select respondents who can provide significant data relevant to the research questions. In this phase, the topic (course) coordinators involved in designing and implementing online or blended courses were chosen to be approached. Their knowledge and experience in the field of designing, implementing, and evaluating topics (courses) for nursing students added rich data on current practice. Furthermore, purposive sampling methods place emphasis on saturation. Creswell and Creswell (2017) identified saturation in qualitative data collection as being when the researcher gathers data until there are no longer any new substantive themes arising from the data analysis process.

Following ethics approval for the study (see Appendix 3: Ethics approval phase II), an email was sent to the Dean of the selected college (school) of nursing requesting to disseminate the invitation with the information sheet to potential participants. Only participants who met the inclusion criteria in Table 10 were selected.

**Table 10: Inclusion and exclusion criteria for the interview**

| Inclusion criteria | Exclusion criteria |
|---|---|
| • Full- or part-time<br>• Topic or course coordinators who has developed or designed an online or blended course for undergraduate/ postgraduate nursing students.<br>• Topic or course coordinators who have participated in developing and designing an online or blended course for undergraduate nursing students. | The following in each school:<br>• Midwifery teachers<br>• Non-nursing staff.<br>• Academic in the school with a non-teaching role e.g., full-time researcher.<br>• Administrative staff<br>• Adjunct staff<br>• Casual staff |

#### *4.3.2.2 The participants*

The request to disseminate the invitation to the potential participants was sent to twelve universities from six Australian states and territories. Only five colleges (schools) agreed to disseminate the invitation email to their staff. Eleven topics (course) coordinators agreed to participate in the interviews (see Table 11). The average duration of the interviews was 53 minutes. The interviewee's experience as a topic coordinator ranged from 2-30 years of experience in teaching.

**Table 11: Participants and institutions**

| Institution | Number of participants | Type of interview |
|---|---|---|
| **Institution A** | 6 | Face-to-face, in-person |
| **Institution B** | 4 | Face-to-face, video conference |
| **Institution C** | 1 | Face-to-face, video conference |

#### *4.3.2.3 Sample size and saturation*

The researcher conveniently selected twelve universities as a sample to approach with the invitation letter to Deans of schools of nursing. The intention was to conduct the interviews until data saturation had been reached. Qualitative data collection is characterised by a small number of participants (Creswell & Creswell, 2017). The sample size in qualitative research is not clear and cannot be calculated, unlike in quantitative research. As a result, it is difficult to estimate the number of

participants needed. The approach used in this research was to stop interviewing at the point of data saturation. Saturation means that the researcher stops collecting data when the new collected data does not yield new insights or add new themes (Creswell, 2015). In this study, the researcher and his supervisor sent a reminder email to the Deans of the colleges to remind them to disseminate the invitation letter after four weeks. Only eleven participants from three institutions agreed to participate in the semi-structured interviews.

#### *4.3.2.4 Ethical issues*

According to Creswell and Creswell (2017), the research plan needs to be reviewed by a relevant institutional ethics committee for approval. Prior to the data collection for Phase II, the researcher applied to the relevant institutional ethics committee to gain approval for Phase II plan. The approval email is within the appendix list (Appendix 3: Ethics approval phase II).

#### *4.3.2.5 The setting of the interviews*

The interviews were conducted in two different formats, face-to-face, one-on-one in-person interviews in a meeting room, and face-to-face, one-on-one interviews using video meeting technology. The reason for using two formats was that the interviews conducted in-person were in the institution in which the researcher was undertaking his PhD. The second approach saved on travel money and accommodation to different states and territories. It was also convenient for both parties, with many of the participants being interviewed from their homes. This made them feel more comfortable in expressing their opinions and discussing issues freely.

#### *4.3.2.6 Informed consent*

The decision to participate in any research activity must be built on informed consent. Potential participants should be given all the required information about the project in order to allow them to make an informed decision based on understanding the benefits and harms (if any) that might arise from their participation (Minichiello, 2008).

The information sheets were sent via email to the potential participants by the Deans of the participating colleges or schools. The information sheet explained the purpose of the project. The participants were asked in the information sheet if they would like to participate in a semi-structured

interview for 45-60 minutes, and if so, to contact the researcher via the email address provided. Upon contacting the researcher, they were given a consent form that addressed issues of confidentiality, data anonymity, and data storage. In addition, the participants were reminded that they were entirely free to discontinue participation in the interview at any time or to decline to answer any question(s).

All participants signed the consent forms to confirm their participation and allow for the audio-recording of the semi-structured interview. Prior to the interview, the researcher mentioned to the participants that if they needed debriefing and felt stressed as a result of participating in the study, they could make contact with the counselling service mentioned in the information sheet. None of the participants required this service.

#### *4.3.2.7 Confidentiality and storage of data*

Anonymity cannot be guaranteed for participants, given that these were face-to-face interviews. Nevertheless, the participants were reassured that any identifying information would be removed, and that the data would be stored on secured university cloud storage that only the researcher and supervisors would have access to. Also, the participants' responses were not linked directly to any particular participant or organisation.

#### *4.3.2.8 Gift vouchers*

After each interview had been completed, each participant was offered a $25 gift voucher in appreciation of their time and effort to participate in the interview. The gift vouchers were approved by the ethics committee.

#### *4.3.2.9 Semi-structured interview schedule*

According to Green and Thorogood (2018, p. 124), an interview can be seen as:

> A conversation that is directed more to less towards the researcher's need for data and can be seen as a specific kind of interaction, in which the researcher and the interviewee produce language data about beliefs, behaviour, ways of classifying the world or about how knowledge is categorised.

The common shortcoming of the interview technique to collect data from participants is that it provides access to what people say, rather than what they do. Interviews mainly consist of open-ended questions, so they do not limit the participants' answers to pre-established alternatives (Polit, 2001). In semi-structured interviews, the researcher has a list of topics to be covered. In this project, the interviewer used a written topic guide (schedule) to ensure that all relevant questions were covered. In this approach, the interviewer encourages the participants to speak freely about all the topics in the guide (Polit, 2001). The list of topics or the outline to be covered can be changed, and the order of the questions can vary during the interview (Minichiello, 2008). On the other hand, the interviewer should not assume that the participants have the information that is being sought in the research questions; rather, the interviewer is exploring what the participants know. Please see Appendix 4: Semi-Structured Interview Schedule for full list of questions.

The interviews were conducted in a university meeting room where it was anticipated that the interviewees would feel safe and secure. The same private room was used to conduct the interviews with the interstate participants via the use of Microsoft Teams™ for video conference meetings. The development of the schedule questions was built on Phase II I results and the literature review.

The researcher practiced the interview schedule and his own technique twice with volunteer course coordinators before the data collection commenced. The researcher's supervisors listened to the recordings and advised on how to use prompting questions and navigate the discourse to explore more about the problem being investigated.

#### *4.3.2.10 Post-interview reflection and transcription*

After each interview, the researcher reflected on the data and recorded field notes that he thought worthy of analysing later. The transcription of the recorded interview took place immediately after each interview. The researcher used transcription web-based software (NVivo™), which allowed for a fast return of the text. The researcher then listened to the interview and fixed the semantics while referencing who was saying what and adding his notes to the transcription. This process allowed the researcher to reflect on the interview and then add to his knowledge for the next interview. The

NVivo™ transcription software allowed for the text and the audio file to be imported into the NVivo™ project file for the data analysis process.

#### *4.3.2.11 Data analysis and the researcher role*

The researcher used deductive thematic analysis, as described by Braun and Clarke (2006), to analyse the data. Braun and Clarke (2006, p. 79) defined thematic analysis as “a method for identifying, analysing and reporting patterns (themes) within data [and] … It minimally organises and describes your data set in (rich) detail”. To carry out thematic analysis, a definition of what represents a theme is a must. Braun et al. (2019, p. 845) identified a theme as “reflecting a pattern of shared meaning, organised around a core concept or idea, a central organising concept”.

The researcher’s role is viewed by Braun et al. (2019) as a valid resource, as the qualitative orientation emphasises meaning as being situated in the reality or realities of the researcher’s subjectivity. The researcher plays an active and engaged role in interpreting and telling the story through the view of their social and theoretical statements.

The data is analysed until saturation is reached, which means collecting data until no new information is generated, as described by Braun et al. (2019). From these definitions, the researcher followed the six phases of thematic analysis to identify themes by bringing together the data from the different participants or meanings from different situations in the data. In addition, the researcher tried to capture the implicit and explicit meanings that recurred in the discourse with the participants. Table 12 below summarises the six phases used in this research.

**Table 12: Phases of thematic analysis, adopted from Braun and Clarke (2006)**

| Phase | Description of the process |
|---|---|
| **1. Familiarising yourself with your data** | Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas. |
| **2. Generating initial codes** | Coding interesting features of the data in a systematic fashion across the entire data set. Collating data relevant to each code. |
| **3. Searching for themes** | Collating codes into potential themes, gathering all data relevant to each potential theme. |
| **4. Reviewing themes** | Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis. |
| **5. Defining and naming themes** | Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme. |
| **6. Producing the report** | The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating analysis to the research question and literature, producing a scholarly report of the analysis. |

### a) Familiarising oneself with the data

In this phase, the researcher was the interviewer in all 11 interviews. During each interview, the researcher recorded notes and any important feelings about the points being discussed. After the interview, the researcher downloaded the mp3 audio file to his PC and then uploaded it to the transcription software NVivo™. The researcher listened to and audited the transcript accordingly. The interview notes were added to the transcript. The researcher then reflected on the interview at hand to capture the feelings and important ideas that may form a theme for later analysis. The NVivo™ software kept the audio and transcribed text in one file for further listening when needed during the next phases of the analysis. According to Braun et al. (2019), familiarisation includes "listening to audio data" and "reading and rereading textual data" in a relaxed, casual, and engaging way.

### b) Initial code generation

In this phase, the researcher commenced organising the data into meaningful groups (Braun & Clarke, 2006), approaching the data from a 'theory-driven' perspective. Braun et al. (2019, p. 853) called this a deductive orientation "where the researcher approaches the data with various ideas, concepts, and theories, or even potential codes based on such, which are then explored and tagged within the dataset." The CoI framework coding template was used as a lens to code the dataset. The researcher was looking for implicit and explicit indicators that arose from the dataset, with specific questions in mind that to be explored. In this phase, the researcher used NVivo 12 Pro™ to create nodes that he felt were important to be included or that could answer the research questions. Table 13 below represent the coding template table that was used to generate the themes.

**Table 13: CoI framework coding template adapted from (Garrison et al., 2000)**

| Elements | Categories | Indicators (examples only) |
|---|---|---|
| **Cognitive Presence** | • Triggering event<br>• Exploration<br>• Integration<br>• Resolution | • Sense of puzzlement<br>• Information exchange<br>• Connecting ideas<br>• Application / new ideas |
| **Social Presence** | • Affective (personal) expression<br>• Open communication<br>• Group cohesion | • Self-projection/expressing emotions<br>• Trust/risk-free expression<br>• Encouraging collaboration/interactivity |
| **Teaching Presence** | • Design and organisation<br>• Facilitating discourse<br>• Direct instruction | • Setting curriculum and activities<br>• Shaping constructive exchange<br>• Focusing and resolving issues |

### c) Searching for Themes

In this phase, the researcher collated similar codes generated from the previous phase into temporary or 'candidate' themes (Braun & Clarke, 2006). The process of selecting the codes to be collated under a particular theme depends on the intersection of the data, the researcher's experience and subjectivity, and the research question(s) (Braun et al., 2019).

**d) Reviewing Themes**

In this phase, the researcher ensured that the relationship between the themes and the coded text represented the particular theme. The researcher also looked at the relationship between the themes and the entire dataset and generated a thematic map.

**e) Revising and Defining Themes**

In this phase, the researcher revised the 'candidate themes' to ensure that there were no overlaps. The researcher also renamed some of the themes to reflect the actual dataset.

**f) Producing the Final Report**

In this phase, the researcher and his supervisors reviewed the final report and the process of generating the themes and results.

#### *4.3.2.12 Data Integration (Quantitative and Qualitative)*

As explained in the methodology section, integration in MMR is the process of combining quantitative and qualitative results to generate an in-depth understanding of a topic. The researcher used a joint display table to visually align the results of the two phases, and the metainferences to interpret the meaning of the integration. Tashakkori and Teddlie (2008, p. 101) described a "metainferences" as an overall conclusion, explanation or understanding developed through an integration of the inferences obtained from the qualitative and quantitative strands of a mixed method study." The metainferences from both phases will be discussed in the discussion and metainferences chapter later in this thesis.

## 4.4 Chapter Summary

This chapter has explained the philosophical worldview that has been used to lead the study. The pragmatic paradigm was introduced together with its ontological and epistemological stances. The MMR design was explored in-depth, including its different typologies. The rationale for using pragmatism as the philosophical umbrella to justify the use of MMR was also explored. Finally, the researcher decided to use the explanatory mixed-methods approach to design this study. Table 21 shows the visual diagram of the study and provides a guide to the overall process.

# CHAPTER FIVE: PHASE I QUANTITATIVE FINDINGS

## 5.1 Overview

The previous chapter presented the philosophical framework that guides this research. The pragmatic paradigm was explored, and the link between social constructivism, the CoI framework, and Dewey's work was presented. The previous chapter also explained the rationale for selecting the MMR design and presented the two phases of the study.

Chapter Five presents the findings of the quantitative phase of this study as a publication in a peer-reviewed journal. This chapter will answer the research questions, "What is the awareness and knowledge of Australian nursing educators about the CoI framework?" and "What are the participants' attitudes on the applicability of the CoI framework to online nursing education courses?". The findings of this phase showed that most participants evaluated the CoI framework as being applicable for designing and evaluating online nursing education. The findings also showed that despite the importance of using a theoretical framework to guide the design and evaluation of nursing courses, such a framework was explicitly used by less than 30% of the participants.

This introduction presents the author statement and publication background explaining the contribution of each co-author to the published article. In addition, a direct link to the journal article with a Digital Object Identifier number is provided below.

The following manuscript emerged from Phase I of the study. It emphasised the applicability of the CoI framework for online nursing education and revealed the current knowledge of the nursing educators about the CoI framework prior to the study. My contribution to this publication as the corresponding author is detailed below (see the authorship declaration as an appendix).

**Citation**

Smadi, O., Parker, S., Gillham, D., & Müller, A. (2019). The applicability of community of inquiry framework to online nursing education: A cross-sectional study. *Nurse Education in Practice*, *34*, 17-24. https://doi.org/https://doi.org/10.1016/j.nepr.2018.10.003

Journal impact factor: 2.28

Citations: 26

## 5.2 Authorship statement and publication background

My first publication represents the need to explore more about the CoI framework in the Australian nursing context to understand if it is applicable from the point of view of nursing educators. The full PhD idea was not clear at the stage of writing the article due to the lack of literature around the topic of the study. With the help of Dr Steve Parker, Dr David Gillham, and Dr Amanda Muller as advisors and co-authors of the publication, I designed the online survey with several editing changes and question alterations. The online survey was piloted with six experienced academics in the College of Nursing and Health Sciences at Flinders University. The feedback from the pilot study helped to redesign the questions by carefully changing the wording and seeking the house statistician's opinion on the questions. For more detail of the method and design of this phase, please read the manuscript below. Please note that the reference list at the end of each article that formatted according to the journal article reference style.

*Data collection and analysis:* I used SurveyMonkey™ to distribute the online survey. I used SPSS to analyse the quantitative results and thematic analysis for the qualitative questions in the survey. The co-authors of this publication were consulted on the steps of the analysis.

*Writing and editing:* I wrote the first manuscript draft for the publication entitled, "The applicability of community of inquiry framework to online nursing education: A cross-sectional study" and designed all the figures in the results section. I approached the Nurse Educator in Practice journal for publication, and the editors wanted the following issues to be addressed:

- Write more background in the literature review
- Some grammar and structure to be reviewed
- Take into consideration the international audience
- A few suggestions to clarify the discussion and the method section.

As I was the corresponding author, I drafted a feedback table showing how I addressed the reviewers' comments. With further discussion and confirmation from the supervisory team, the article was accepted for publication.

**The applicability of community of inquiry framework to online nursing education: A cross-sectional study**

### 5.2.1 Abstract

The Community of Inquiry (CoI) framework has the potential to contribute to online education by addressing the nexus of pedagogy, technology, and learners' needs. However, there has been limited investigation of the application of CoI to Australian online tertiary education, with the awareness of CoI amongst Australian nurse educators being unknown. This paper reports on a project which used an online survey to investigate the level of awareness of the CoI framework and its applicability to the design of online and blended courses in Australian higher education nursing schools.

Most respondents ranked the core concepts of the CoI framework as applicable for nursing education, but only 20% of the participants were familiar with the CoI framework before they participated in the survey. While nearly 90% of the participants viewed instructional design and a theoretical framework as essential for building an online course, 70% of respondents indicated that they did not use an explicit theoretical framework to guide the design or the evaluation of their nursing teaching and learning. These results provide the impetus for further investigation of factors influencing the development of online nurse education, including the specific consideration of CoI frameworks.

### 5.2.2 Introduction/Background

The adoption of e-learning may be outpacing research to the extent that technological changes and their implementation are preceding our understanding of how e-learning can support a high-quality educational experience (Garrison & Anderson, 2003). According to Garrison (2011, p. 13), there is a lack of rigorous research providing evidence to guide e-learning in higher education. Norton and Cherastidtham (2014) agree with Garrison and Anderson (2003) assessment of the rapid adoption of e-learning, noting that it is often part of a blended learning approach. In Australia, most, if not all, universities provide educators with a learning management system (LMS) to deliver courses. These LMS (e.g., Moodle, Blackboard) provide an online platform for students by using an interface that

makes it easy to default to didactic teaching and learning. For example, the commonly used components of LMS are modules, books, folders, and pages. While discussion forums and video conferencing are very common in online courses, LMS also includes a range of more interactive features and advanced functions such as customised learning pathways, collaborative content, peer interaction and assessment workshops, file sharing, real-time messaging, and wiki forums. However, according to Christie and Jurado (2009), these interactive features are not widely used by course designers. Shea and Bidjerano (2009) report that designers of online courses and educational providers are often confused about how to integrate new technologies into online learning environments in ways that will enrich student learning. Lack of time (Button et al., 2014) may be a factor because nurse educators often need to prepare courses on very short timelines and therefore resort to basic LMS functionality rather than trying more complex interactive learning tools and approaches. Of key importance is that a suitable pedagogy needs to underpin online course design so that student learning is optimised when online technologies are used. The CoI framework may provide such a pedagogy. The purpose of this research project was to investigate the educational providers' and course designers' views on the applicability of the concepts of the Community of Inquiry framework to the design of online nursing education courses in Australian universities.

### 5.2.3 The Community of Inquiry (CoI) framework

The Community of Inquiry (CoI) framework originated in the work of Dewey (1938), Peirce (1955), and Lipman (2003). Garrison et al. (2000) broadened and adapted the CoI framework for e-learning education by viewing it through the lens of social, cognitive, and teaching presences. According to the original developers of the Community of Inquiry framework, social presence in an online course means: "The ability of learners to project themselves socially and emotionally, thereby being perceived as 'real people' in mediated communication" (Garrison et al., 2000, p. 90). Where the cognitive presence in an online course means "The extent to which learners are able to construct and confirm meaning through sustained reflection and discourse" (Garrison et al., 2000, p. 89). The last but not the least presence is the teaching presence, defined as "the design, facilitation, and direction of cognitive and social processes for the purpose of realising personally meaningful and educationally worthwhile learning outcomes" (Anderson et al., 2001, p. 5).

The CoI model assumes that learning occurs within the community through the interaction of these three core elements. This adaptation of the CoI framework closes the gap between pedagogy, technology, and learners' needs at a tertiary level (Campbell & Cleveland-Innes, 2005; Garrison et al., 2004; Garrison et al., 2000; Jackson et al., 2013; Shea & Bidjerano, 2009; Swan et al., 2008). In the following, the term *online learning* will be used to refer to e-learning that is conducted online or by blended learning, and the term *CoI* will refer to the adapted model of CoI developed by Garrison, Anderson and Archer (2000).

The online CoI framework is a collaborative constructivist model of teaching and learning (Swan et al., 2009) consisting of three intersecting presences – social, cognitive, and teaching (see Figure 10 below). According to Swan et al. (2009), the collaborative constructivist approach to learning favours collaboration and engagement, and the online CoI framework explicitly embraces these elements. Therefore, the online CoI model is potentially relevant to the application of emerging interactive e-learning technologies, particularly as one of its major strengths is its focus on how students learn through interaction (Hoskins, 2012). The following discussion describes the research regarding CoI as it relates to online education.

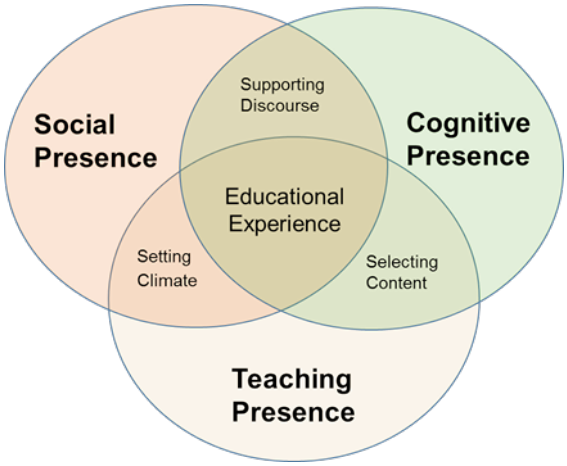


**Figure 10: Community of Inquiry framework (Garrison, Anderson & Archer 2000)**

#### *5.2.3.1 Community of Inquiry research in online education and its implications*

Since CoI was first applied to e-learning by Garrison et al. (2000), it has been extensively researched and refined across multiple disciplines, and tools for assessing CoI have also been developed

(Arbaugh et al., 2008). There is increased interest in the CoI framework generally (Anagnostopoulos et al., 2005; Arnold & Ducate, 2006; Shea, 2006).

Effective promotion of learning using CoI has been reported in disciplines such as business (Chen et al., 2017), foreign languages(Arnold & Ducate, 2006) and information systems (Heckman & Annabi, 2005). Empirical evidence shows that the CoI framework has a positive impact on the students' satisfaction, higher-order learning, and retention rates when online courses are developed when consideration is given to the social, cognitive, and teaching presences (Akyol & Garrison, 2011a; Boston et al., 2009; Hoskins, 2012). This work is not complete because, in a review of the literature, Garrison and Arbaugh (2007) felt that more collaboration would be fruitful between those familiar with the CoI framework and researchers from other disciplines interested in online education.

#### *5.2.3.2 Community of Inquiry research in nursing and health sciences*

While the CoI framework has been found to be effective in promoting learning in a range of disciplines, there has been limited research into the CoI framework related to education in nursing and the health sciences (Mills et al., 2016; Phillips et al., 2013). For example, professional practice in nursing and the health sciences requires advanced communication skills (Lewis et al., 2012). Concerns exist that the distancing and impersonal nature of poorly implemented e-learning may not assist students to develop these skills. Because the CoI framework emphasises interactive learning and communication, its application to e-learning may ameliorate some of these concerns. Given the limited research addressing CoI and health discipline education the potential of the CoI framework to enrich online nurse education needs to be investigated. The research project reported here begins to address this need.

### 5.2.4 Research methods

This project will explore the following questions:

1. What is the awareness and knowledge of Australian nursing educators about the CoI framework?
2. What is the participants' attitudes on the applicability of the CoI framework to online nurse education courses?

An online survey was considered the most efficient way of exploring these issues.

#### *5.2.4.1 Survey design*

A review of the literature was carried out on the applicability and awareness of the CoI framework in nursing education. This review examined Scopus, Proquest, CINHAL and Web of Science databases with keywords including: Community of Inquiry, online, blended, e-learning, evaluation, design, nurse, knowledge and awareness. The literature review informed the development of the survey tool which was divided into three sections: 1) demographic information, 2) the applicability of CoI presences, and 3) awareness and knowledge of CoI.

The first section of the survey requested demographic data including academic years of experience, the participants' involvement in course design, their preferred and current mode of teaching, their current role, and the topic content they usually taught. Participants were also asked about their institutional support for online learning and the use of theoretical frameworks in the design and evaluation of online courses.

The second section of the survey asked participants for their opinions about the applicability of the three core elements of the CoI framework (the social, cognitive, and teaching presences). These questions were adapted from the original CoI framework survey tool designed by(Arbaugh et al., 2008). The Arbaugh et al. (2008) survey was designed to investigate students' perceptions of cognitive, teaching, and social presence in online courses and to explore the interrelationships among the three presences. The adapted survey tool designed for this project was intended to investigate educators' perceptions, rather than student perceptions, of the applicability of cognitive, teaching, and social presences in online courses. Face validity of the tool was established via a panel of expert reviewers who have extensive experience of course design and topic coordination in an Australian school of nursing.

The three presences of the CoI framework were defined for participants before they were asked to rate how components of each presence applied to online nursing education. Participants were not provided with background information about the overall CoI framework -- this strategy was intended to reduce any influence on the responses about the value of CoI itself. Participants were asked to

rate the applicability of each presence to online education. Each question included an optional comment box for further elaboration of the participants' answers if they wished.

The final section of the survey investigated participants' prior familiarity with the CoI framework. This section asked the participants to describe the CoI framework in their own words and indicate whether they used it to design and evaluate their courses. If the participants were not familiar with CoI, branch logic was used to shorten the survey. Evans and Mathur (2005) described the branch logic as a strength where the participants reply only to the questions that apply specifically to them.

#### *5.2.4.2 Selection of respondents*

Survey respondents were selected using a purposive sample by using the *Commonwealth Register of Institutions and Courses for Overseas Students* (CRICOS) (Australian Government Department of Education and Training, 2016). The use of the CRICOS search engine made it convenient to identify higher education providers who offer a bachelor degree in nursing in Australia. Of the 34 identified universities, 31 schools of nursing had academic staff email addresses available on their websites. The publicly available email addresses of all nursing educators were collected. This process yielded 1,201 email addresses. An email was sent to each of these academic staff introducing the research project and the objectives of the study. The data was collected using the online survey tool SurveyMonkey® and an online link was provided in the email invitation for respondents to access the survey. A reminder email was sent four weeks after the initial email. From the 1,201 emails sent to the Australian nursing educators, 138 completed surveys were received, giving a response rate of 11.5%.

#### *5.2.4.3 Ethical considerations*

Participants were informed that the completion of the survey would be considered as consent to participate in the study. No identifying information was sought from participants. The research project was approved by the first author University's *Social and Behavioural Research Ethics Committee*.

#### *5.2.4.4 Data analysis*

The data was analysed using descriptive statistics for multiple choice questions. The open-ended qualitative responses were descriptively coded and the central themes were grouped into categories. The mean score, standard deviation, aggregated mean score, and pooled standard deviation of the

Likert scale responses was analysed and ranked in the order of perceived importance to the participants (Cohen, 1988).

### 5.2.5 Results

#### *5.2.5.1 Demographic data and teaching activities*

90% of respondents were involved in curriculum design with more than 48% having more than six years' curriculum design experience. A summary of the demographic data and teaching activities of respondents is presented in Table 14.

**Table 14: Demographic data and teaching activities summary**

| Participants' characteristics ( n=138) | n (%) |
|---|---|
| > 45 years old | 108 (79%) |
| Level of employment: | |
| Level A Tutor/ Associate Lecturer | 9 (7%) |
| Level B Lecturer | 67 (49%) |
| Level C Senior Lecturer | 38 (28%) |
| Level D Associate Professor | 11 (8%) |
| Level E Professor | 8 (6%) |
| Level of course they teach (more than one option) | |
| Bachelor Degrees | 105 (82%) |
| Master Degrees | 73 (57%) |
| Doctorate | 42 (33%) |
| Full time | 124 (86%) |
| Mode of current teaching | |
| Combination of face-to-face and online | 106 (83%) |
| Percentage of time spent online in the last 12 months : > 30% online | 107 (78%) |
| Involved in curriculum design | 122 (90%) |
| Years of experience working in: | |
| • Nursing education >6 years | 113 (84%) |
| • Curriculum design >6 years | 66 (48%) |

#### *5.2.5.2 Use of a theoretical framework for educational design*

90% of the participants indicated instructional design and frameworks are essential to building an online course by rating this as somewhat significant or strongly significant. However, 70% of these respondents also indicated that they do not use an explicit theoretical framework to guide the design or evaluation of nursing teaching and learning. Furthermore, 42% of the participants agreed that their institutions have no theoretical framework to design and evaluate online courses.

#### *5.2.5.3 Teaching mode*

The participants were asked to rank the suitability of teaching modes for designing nursing education curriculum. Blended learning was ranked as the most suitable teaching mode by 90% of the participants. 70% of participants disagreed with the statement that online or web-based communication is a poor medium for educational communities.

#### *5.2.5.4 Institutional support*

Participants reported varying institutional support for online learning with nearly 46% agreeing that their institution offers the necessary support. 37% rated their institutional support as insufficient.

#### *5.2.5.5 Applicability of the Community of Inquiry framework*

**Social Presence (SP)**

Figure 11 below summarises the answers of the participants to the 'social presence' questions. 85% of participants reported that creating social presence in an online course was dependent upon the learner being able to create a sense of their identity. According to the participants, the learner must show 'willingness' to 'interact' and 'engage' to show their identity in an online course. Participant (SP a P14) suggested that:

> *[t]he learner's active engagement with the learning resources and with other participants in the learning community is an essential attribute that helps develop the learner's individual social presence.*

Some participants reported that establishing social presence relies on the teacher's ability to initiate and facilitate the creation of the personal identity of the course participants. For example, the participant (SP a P15) stated that:

> *… it helps a lot if the teacher can project a certain warmth and acceptance online so students feel safe to open up and participate.*

70% of the participants thought that social presence in an online course could be best promoted if students feel they own the online space. However, some participants questioned if learners 'owned the space' but instead shared it with the teacher and other students. As participant (SP b P4) stated:

> *It is not only students who 'own' the space it is a shared learning space - however, teachers do need to be responsive to student's needs.*

54% of the participants thought the statement that 'Online or web-based communication is an excellent medium for social interaction' was applicable.

The participants who commented on this statement regarded online communication as an excellent medium for learning only if the design of the course and the facilitator encouraged the learners to do so. Respondent (SP c P6) believed that an educator:

> *… need[s] to be creative and innovative to create a successful online social community.*

On the other hand, some participants, when commenting on the social presence question, expressed concerns about the ability of online learning to develop face-to-face clinical communication skills. For example (SP c P12) stated:

> *[n]urses need to learn how to interact face-to-face. Students tend to 'hide' behind the online environment in dealing with issues and I'm not convinced they are therefore equipped when they enter the world of clinical practice.*

93% of the participants believed that social presence in an online course would only be established if learners have a feeling of safety. Also, according to some participants, feeling safe in an online environment is the responsibility of the course designer or the teacher facilitating the course. In other

words, creating the feeling of safety in the online classroom is part of the teaching presence (TP), illustrating the interaction between SP and TP. Participant (SP d P13) said:

> *This [feeling safe in online environment] comes back to design and also modelling and moderation by staff.*

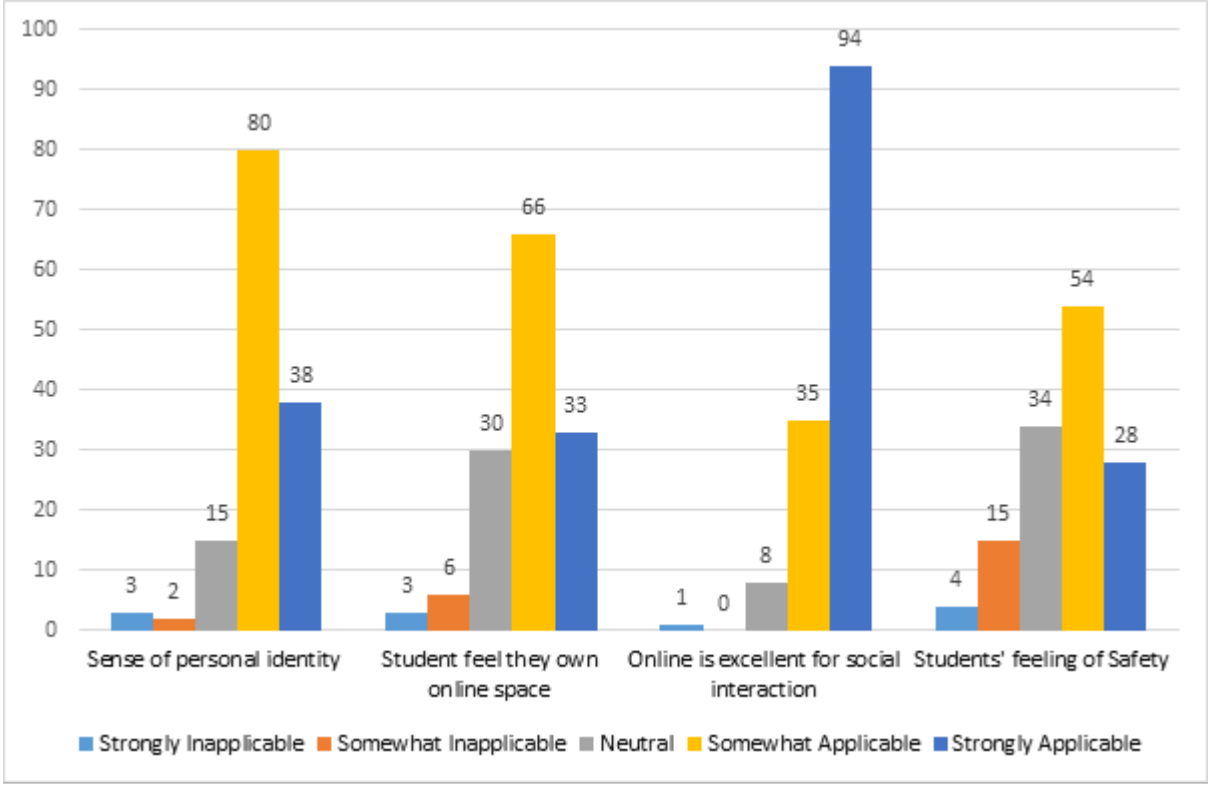


**Figure 11: Social Presence Applicability**

### Cognitive presence (CP)

Figure 12 below summarises the answers of the participants to the 'cognitive presence' questions. (80%) of the participants believed a triggering event is required for CP to work effectively in an online course.

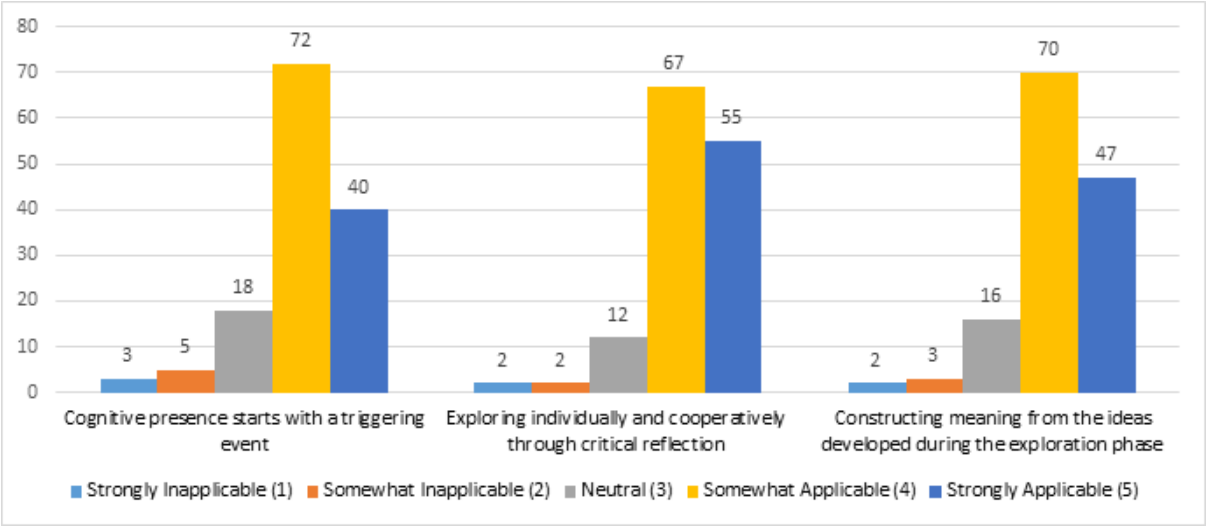


**Figure 12: Cognitive Presence Applicability**

The participants thought that the triggering event should increase 'critical thinking', 'reflection', and 'engagement' in a trusted' environment'. One participant (CP a P2) wrote:

> *[t]his idea [a triggering event] is critical for learning in an engaged online environment. [a] little controversy is good to get the discussion going too.*

87% of participants thought that the concept of CP in an online course is created by learners exploring the issue, both individually and cooperatively, through critical reflection and discourse. One participant (CP b P5) commented:

> *[r]eflection and constructive, non-judgemental feedback on that reflection assists the student to make sense of the 'event'.*

84% of the participants agreed that CP in an online course is created by learners constructing meaning from the ideas developed during the exploration phase. However, some participants questioned the design of most online courses stating, for example, (CP c P6) said :

> *A well designed course may achieve this but most online courses are not well designed and do not engage learners or learning.*

**Teaching Presence (TP)**

Figure 13 below illustrates the answers of the participants to the 'Teaching Presence' questions. 88% of participants thought that facilitating discourse by defining and initiating discussion topics and identifying shared personal meaning was necessary to establish teaching presence in an online course.

'Facilitation' was portrayed as an attribute in creating TP, according to (TP a P4):

> *Online courses work best with tutors being regularly present and providing consistent, relevant and timely pathways, expectations, feedback and interaction.*
>
> *Students need direction and focus to achieve the learning outcomes and be efficient in the time and effort they put into the activities.*

83% of the participants thought that TP in an online course is established by the teacher providing direct instructions by focusing the discussion, questioning, giving direct feedback, injecting of new knowledge, and giving technical support. One participant (TP b P1) stated that:

> *[f]eedback and responses need to be immediate. Delayed feedback is very stressful for students who rely on this feedback to complete an activity that will be assessed. They have set a time and place in their busy lives/schedule and are frustrated if there is lack of feedback or response.*

A few participants were concerned about the 'technical support' that they should provide to the learners, feeling it was beyond their scope. For example, for one participant (TP b P15) wrote:

> *[s]ome technical support from the teacher is appropriate, but it's not really our role. Helping the students seek other supports, such as IT, and having excellent access to this, is essential to preserve a realistic workload.*

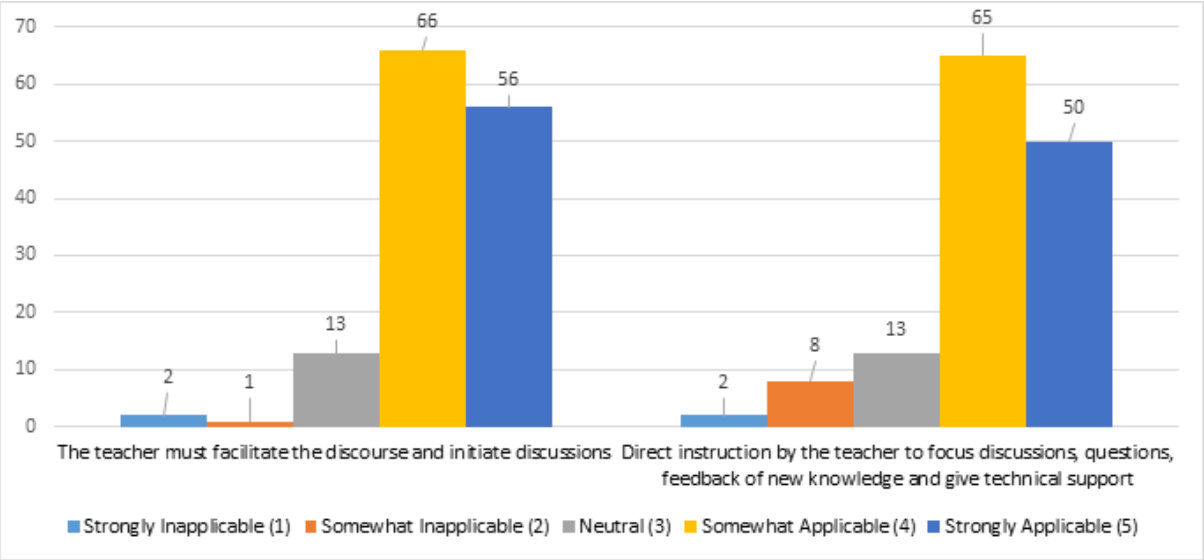


**Figure 13: Teaching Presence Applicability**

### Overall applicability of Community of Inquiry scores

Table 15 below shows the overall mean and pooled standard deviation score for each presence. This result confirms that the nurse educators consider the core concepts of the CoI framework as applicable to nursing education. A mean score of between 4 and 5 indicates a rating of 'somewhat applicable' to 'strongly applicable'.

**Table 15: Overall applicability score of the three presences**

| Presence | Overall mean score | Pooled SD score |
|---|---|---|
| **Social Presence Applicability** | **4.03** | **.62** |
| **Cognitive Presence Applicability** | **4.14** | **.74** |
| **Teaching Presence Applicability** | **4.19** | **.76** |

#### *5.2.5.6 Awareness of Community of Inquiry amongst Australian nurse educators*

The participants were asked to rate their familiarity with the CoI framework on a Likert scale from 1 (never heard of it) to 5 (extremely familiar) before this survey. Only 27 participants, 21% rated themselves as 'familiar' or 'extremely familiar' with the CoI framework before they had taken this

survey. These participants were asked to describe the framework briefly. The answers were thematically analysed and grouped as shown in Table 16. Participants not familiar with CoI were not asked to complete this section of the survey.

**Table 16: Familiarity with CoI framework**

| Open-ended questions | n | The most important themes |
|---|---|---|
| **Please write a brief statement describing what the Community of Inquiry framework is.** | 21 | 1 Excellent knowledge (38%)<br>2 Good knowledge (24%)<br>3 Weak knowledge (19%)<br>4 No knowledge (10%) |
| **What do you like most about the Community of Inquiry framework?** | 20 | 1 Collaboration<br>2 Engagement<br>3 Not alone<br>4 Interaction<br>5 Achieve goals<br>6 Sharing |
| **What do you most dislike about the Community of Inquiry framework?** | 6 | 1 Not enough time/resources to implement<br>2 Idealistic framework<br>3 Hard to engage/motivate the students in the blogs<br>4 Very high load for teachers |

The participants who rated themselves as being 'familiar' to 'extremely familiar' with the CoI framework (N=26) were asked how often they explicitly drew on the CoI framework in designing and evaluating online topics/courses. 42% of them answered that they very often drew on the CoI framework in designing online topics/courses. 31% of the 26 participants thought that they very often drew on the CoI framework in evaluating online topics/courses. 79% of the 28 participants would recommend the CoI framework to a friend or colleague to use in designing and evaluating online courses for nurses.

46% of the 28 participants rated teaching presence as the most important presence in achieving a community of learners in a CoI framework. It was evident from the answers of the participants in the previous questions on the applicability of CoI core components that achieving better social and cognitive presence in an online environment must start with a good teaching presence.

### 5.2.6 Discussion

The results of this study suggest that nurse educators believe the CoI framework may apply to nurse education in Australia. While explicit awareness of CoI is relatively low amongst nurse educators, the survey respondents value the presences that make up the CoI framework. It also shows that there is an interest in CoI presences even if educators do not think of them in the formal terms of the CoI framework. These findings are important because they suggest CoI may be valuable to underpin the design of online or blended nurse education and there may be scope to improve knowledge and awareness about CoI.

#### *5.2.6.1 The significance of instructional design and institutional support*

The majority of respondents suggested that instructional design and a theoretical framework were important for e-learning, but they did not use an explicit instructional design or conceptual framework to inform their e-learning design. The results suggest that educators recognise the need for instructional design or a theoretical framework but were inhibited from being able to implement this. These findings are consistent with the work of Panda and Mishra (2007) who found time, limited technical support, and lack of training and support for instructional design as barriers for e-learning development. Since under half of the participants reported adequate support in their institution for e-learning, there may be a need for improved staff development and education design support for e-learning. These findings illuminate the need for instructional design and a theoretical framework to design online or blended learning for nursing courses. With the emphasis on staff development on CoI framework, it can be used to provide a pedagogical framework not only to design but also to evaluate online courses for nurses.

#### *5.2.6.2 Teaching mode*

The majority of respondents rated blended learning as the most suitable teaching mode to design nursing education curriculum. Nursing students perceived the blended mode favourably to assist their knowledge and support the psychomotor techniques necessary for the acquisition of clinical skills(Bloomfield & Jones, 2013). The suitability of blended learning to nursing education maybe due to the fact that nursing education needs a combination of hands-on skills-based training at a

functional level in addition to self-driven learning (Al-Shorbaji et al., 2015). Given the applicability of CoI to blended learning (Garrison & Vaughan, 2008) and the findings of this study showing wide use of blended learning in nursing, further investigation of CoI in blended nurse education is warranted.

#### *5.2.6.3 The applicability of Community of Inquiry*

Survey participants strongly supported the value of the teaching, cognitive, and social presence for effective e-learning even though the majority of participants had little explicit prior knowledge of CoI. Since CoI presences were valued by educators it is important to examine each of these presences in turn.

#### *5.2.6.4 The views of nursing educators on social presence*

Social presence can be classified into three broad categories: emotional expression, open communication and group cohesion (Garrison et al., 2000).The majority of the participants strongly agreed that SP was dependent upon the learner being able to create a sense of their personal identity. From the comments, the participants linked between the interactions, engagement, and the facilitation of the teacher with the creation of personal identity. This linking suggests that the presences in the CoI framework are dynamic and interdependent so they collectively contribute to a worthwhile educational experience. This interaction between SP and TP is also illustrated by the views of some participants that feeling safe in an online course is dependent on the design and moderation of the staff. Unsurprisingly, there is a relationship between the SP indicators in an online course and student retention(Boston et al., 2009).

#### *5.2.6.5 The views of nursing educators on cognitive presence*

Cognitive presence is defined in terms of a cycle of practical inquiry where participants move deliberately from understanding the problem or issue through to exploration, integration, and resolution (Garrison, 2016).

According to the participants, the stages of practical inquiry -- namely triggering, exploration, integration, and resolution -- are applicable to nursing education. Some participants commented that triggering events would increase critical thinking, reflection, and engagement in an online course.

The participants confirmed the role of the teacher and good design to enable the learners to reach the exploration phase of the cognitive presence. These factors reinforce the importance of the teaching presence thereby providing evidence about how the interaction between the presences are vital to achieve the higher order learning.

#### *5.2.6.6 The views of nursing educators on the applicability of teaching presence*

The teacher in this element commences the process before the course begins by acting as instructional designer and continues during the course by facilitation of the discourse and providing direct instruction (Anderson et al., 2001, p. 4). The three attributes of TP were rated as applicable to online nursing education. The qualitative themes produced were 'facilitation role of the teacher', 'focusing discussion', 'giving timely feedback', and 'injecting new knowledge'.

TP works as a binding element of cognitive and social presence. In general, teaching presence has been found to have three distinct roles: instructional design and course organisation; facilitation of discourse; and directed instruction (Anderson et al., 2001, p. 4). It was evident from the participants' answers how TP interact with and affect the other presences. This result is supported by the literature showing the significant effect of TP on SP and CP (Garrison, 2011; Garrison et al., 2010b; Shea & Bidjerano, 2009; Szeto, 2015) and the role of TP, along with CP, in positively affecting student satisfaction (Lee, 2014).

### 5.2.7 Implications

The applicability of CoI to nurse education is particularly interesting and warrants further investigation. It is apparent that educators rate cognitive, social, and teaching presence all as important. Given governmental and university emphasis on improving student satisfaction and reducing attrition, it is important to acknowledge how CoI has contributed positively to these outcomes in non-health disciplines (Akyol & Garrison, 2011b; Boston et al., 2009; Hoskins, 2012). This suggests that a logical progression for future research is to see if CoI leads to improvements in student satisfaction and reduced attrition in nurse education. As a theoretical approach, CoI is particularly valuable in that it provides a framework that can integrate with and guide the use of emerging technologies. For example, TP can be promoted by using videocasts, podcasts, webinars,

discussion forum interactions, live chat, or a range of other approaches. Likewise, SP can be facilitated through a range of blended learning approaches including those related to use of social media and inter-professional education. Development of CP can include the construction of authentic assessment items that require critical thinking and collaborative problem solving which is achieved through use of simulation technology. Consequently, CoI can provide a theoretical developmental and evaluation framework that can be linked to key educational outcome measures and incorporate a range of educational interventions. Of upmost importance is that CoI is concerned with how people learn with technology, rather than the technological itself.

### 5.2.8 The awareness of Community of Inquiry

The awareness of CoI among participants is limited. Self-reported knowledge of the CoI framework ranged from excellent to minimal knowledge. The advantages of the CoI framework -- according to the study participants -- are the ability of the framework to increase collaboration, engagement, interaction, sharing, and the students' feeling of not being alone in the online environment. On the other hand, participants expressed their concerns about the amount of time and resources needed to implement such a theoretical framework, especially with the low technical support they received as reported in this survey. The participants who were aware of the CoI rated the TP as the most important presence in achieving community of learners in a CoI framework.

### 5.2.9 Limitations

Some methodological limitations need to be taken into account when interpreting the result of this study. It is possible selection bias may have resulted in participants responding who had an interest in online nurse education and the focus of the survey. The response rate was low, which may be problematic, but the literature reports that response rates of between 5%-12% are common in online surveys (Porter & Whitcomb, 2007).

It is important also to acknowledge the limitations of the survey tool which was not validated, even if it was an adaptation of a validated tool. Despite the establishment of the face validity of the tool via a panel of expert reviewers, additional work of this kind would necessitate validation of the tool for more vigorous research.

### 5.2.10 Conclusion

This study has identified the potential applicability of CoI to online nurse education by surveying educators currently teaching in online or blended modes in Australia. Also, this study has shown the perceived importance of instructional design and theoretical framework to build an online course for nurse educators using blended learning. Since CoI has been shown to improve student satisfaction and decrease attrition in non-health disciplines, the implementation of CoI in nurse education should be investigated more. CoI provides a comprehensive framework relevant to face-to-face, blended, and online education with the potential to embed numerous technology-linked interventions within a CoI framework. For the CoI framework to be utilised to the maximum, the universities should invest in staff development programs using this framework, so they are more familiar with it. The challenge for educators is how to optimise the benefits of this framework and identify the most effective technologies and strategies to build the teaching, social, and cognitive presence.

# CHAPTER SIX: PHASE II QUALITATIVE FINDINGS

## 6.1 Overview

The previous chapter presented the findings from the quantitative phase of this mixed-methods study. Chapter Six will present the findings of the qualitative phase that were published in a peer-reviewed journal. The qualitative findings are divided into two articles which collectively addressed the following questions:

1- How do nursing educators use an educational theoretical framework and create a learning community in online/blended courses? (Part A publication)

2- Is there any implicit relationship between current online/blended course design and CoI framework constructs? (Part A publication)

3- What factors (challenges or facilitators) influence the adoption of the CoI framework into online/blended nursing pedagogy? (Part B publication)

These questions were developed from the findings of Phase I to explore current practice in designing and evaluating online/blended courses to create a community of learners, and to understand the challenges or facilitators of adopting the CoI framework and how to use it. In Part A, the deductive thematic analysis using the CoI coding template confirmed that the framework's explicit application would strengthen the social and teaching presences in nursing course design. For full findings and discussion, see Part A below (the first article).

In Part B (the second article), the thematic analysis of the semi-structured interviews demonstrated the factors needed to adopt the CoI framework into online/blended nursing education. It used the CoI framework and Meleis's Transition Theory, providing insight into how to facilitate the transition [from role insufficiencies to role supplementation to role mastery] of nursing academics' journeys in adopting teaching, social, and cognitive presences for online higher education. For full details of the findings and discussions, please see Part B article in this chapter.

## 6.2 Part A

The following manuscript is part A of Phase II of this study. It explored the current course design and evaluation practices using the CoI framework lens.

**Citation**

Smadi, O., Chamberlain, D., Shifaza, F., & Hamiduzzaman, M. (2021). A Community of Inquiry lens into nursing education: The educators' experiences and perspectives from three Australian universities. *Nurse Education in Practice*, *54*, 103114. https://doi.org/https://doi.org/10.1016/j.nepr.2021.103114

Journal impact factor: 2.28 Citations: 2

### 6.2.1 Authorship statement and publication background

My second publication represents the need to explain current course design and evaluation practices among nursing educators, and to understand the implicit relationship to the CoI framework presences in their practice. This aim arose from Phase I findings of most of the nursing educators who highly regarded the use of a theoretical framework to design their courses but, the explanatory sequential mixed-methods design allows the use of the findings from Phase I to build the data collection tool to explain in-depth more issues around the subject of the study. So, with the help of Professor Diane Chamberlain, Dr Fathimath Shifaza, and Dr Mohammad Hamiduzzaman as advisors and co-authors of this publication, I constructed the interview schedule using the findings from Phase I. The interview was piloted and audio-recorded with one experienced nursing educator to identify any unclear questions and to explore better probing questions to reveal richer data.

Data collection and analysis: I organised and conducted the interviews after receiving consent from each participant. I transcribed the recorded interviews and added my reflections after each interview. I analysed the data using NVivo™ software, while the supervisory team consulted on the generated themes and sub-themes.

Writing and editing I wrote the first manuscript draft for publication entitled, "**A Community of Inquiry Lens into Nursing Education: The Educators' Experiences and Perspectives from Three Australian Universities**". I designed all the figures in the results section. I approached the Nurse Educator in Practice journal for publication, and the editors wanted the following issues to be addressed:

- Clarify the study design and methods
- Some grammar and structure to be reviewed
- Use the COreQ criteria for reporting qualitative research to guide the reporting of this paper

As I was the corresponding author, I drafted a feedback table that addressed all the comments. With further discussion and confirmation from the supervisory team, the article was accepted for publication.

**A Community of Inquiry Lens into Nursing Education: The Educators' Experiences and Perspectives from Three Australian Universities.**

### 6.2.2 Abstract

**Aim***:* Nursing is a social and collaborative profession; therefore, nursing education requires a pedagogy that supports the establishment of a collaborative learning community. Despite the limited use of the Community of Inquiry framework in Australian nursing courses, the educators viewed it as applicable for course design. This paper aims to understand Australian nurse educators' current practices in designing and delivering courses using the Community of Inquiry lens.

**Design and methods***:* This paper represent the second phase of the explanatory mixed-methods approach—the data collected in October 2019 via semi-structured interviews with eleven nurse academics from three Australian universities.

**Results***:* the deductive thematic analysis using the Community of Inquiry coding template confirmed that the' cognitive presence' and its indicators are implicitly embedded in online/blended courses. But the' social presence' and' teaching presence' are faced with some challenges: the underuse of discussion forums by students, the use of social media pages with exclusion of educators and the educators' role of content development rather than course design.

**Conclusions***:* The study findings suggest that the Community of Inquiry framework's explicit application would strengthen' social and teaching' presences in nursing courses design. Further studies on nursing

### 6.2.3 Introduction

Nurse educators aim to foster adult learners to become reflective, self-critical, and self-driven, collect and interpret information critically, link diverse concepts, and practice comprehensively. An educational theoretical framework provides a meaningful basis for teaching and learning processes (Khalil & Elkhider, 2016; Popescu & Badea, 2020). Since critical thinking and evidence-based practice are requisite in higher education, any curriculum's design is expected to achieve them, particularly in clinical disciplines such as nursing (Carvalho et al., 2017). The nursing profession is social and collaborative, and nursing students require a learning experience that advances their mutual understanding (Zhang & Cui, 2018). The social constructivism theory of learning advises that knowledge emerges via social interactions and critical discourses (Brandon & All, 2010). This theory has the potential to improve nursing students' critical thinking and adaptation to the changes in evidence-based practice by facilitating collaborative learning.

The Community of Inquiry (CoI) theoretical framework, grounded in the social constructivist approach, is a pedagogical model designed to offer ways of learning that are adaptable, collaborative, and engaging through the process as well as the content. This framework facilitates any learning delivery mode but is best suited to the online/blended environments where it facilitates access, engagement, and interaction. Embedded in the CoI application is the need to make learning processes explicit, especially in technology-enabled learning environments (Garrison et al., 2010a). John Dewey's work on 'thinking and inquiry' and the work of Vygotsky on social constructivism was extended by Garrison et al. (2000) to develop the CoI framework to design and evaluate the online/blended courses (topics or subjects). With a constructivist method, the student is "active rather than passive … it is the individual learner's interpretation and processing of what is received through the senses that create knowledge" (Ally, 2008, p.30). Adopting such an approach to learning requires "creating learning conditions that engage students in active learning and in using higher-order thinking to foster personal meaning-making" (Lock & Johnson, 2018, p.186).

This framework has been used in various disciplines because it supports the critical thinking and the effectiveness in creating a collaborative learning environment, like education, linguistic, and social sciences, particularly in the USA and Canadian tertiary education (Anagnostopoulos et al., 2005;

Arnold & Ducate, 2006; Castellanos-Reyes, 2020; Shea, 2006). CoI framework provides a theoretical foundation for blended learning, the purposeful combination of face-to-face and online activities. It focuses on recognising the unity of the public and private worlds, information as well as knowledge, discourse and reflection, control and responsibility, and process with learning outcomes (Garrison & Vaughan, 2008).

Blended learning approaches are pervasive and favoured by students and educators in clinical disciplines (Bains et al., 2011); more specifically, Smadi et al. (2019) found blended learning as the most suitable teaching mode [90% of the nurse educators agreed]. The relevant question may be "what is the optimal pedagogical framework to provide blended learning opportunities? A comparative study between fully online and blended learning courses using the CoI framework found that "students in the blended course had a higher perception of learning, satisfaction, cognitive presence, teaching presence, social presence" (Akyol et al., 2009b, p. 65). Even though research into the application of CoI in nursing education has increased in recent years (Padilla & Kreider, 2018a), in Australia, the CoI framework has not been widely implemented (Mills et al., 2016). The increasing demand for shifting to online/blended mode warrants more research on the importance and use of the theoretical underpinnings in nursing courses' design and evaluation.

To investigate the applicability of CoI in tertiary nursing education in Australia, a multiphase, mixed-methods study was conducted. The study's first phase findings reported that the CoI framework is applicable in nursing courses (Smadi et al., 2019). This paper report findings from the second phase of the mixed-methods study. The second phase of the study aimed to review course design and evaluation among nurse educators, from the lens of CoI, to identify explicit or implicit components [e.g. cognitive, social, and teaching presences] in their practices. This paper begins with an overview of the CoI framework and its components, then the qualitative data collected from the nurse educators are thematised in the findings section, followed by a discussion on the CoI practices. Using the CoI lens, the findings generate knowledge about nurse educators' understanding of online/blended course design and evaluation. It concludes with a discussion of how CoI presences are embedded in nursing courses and shape the students' educational experience.

### 6.2.4 The CoI Framework presences

The CoI framework identifies the basis of meaningful teaching and learning in online and blended settings (Garrison, 2017). It reduces the gap between pedagogy, technology, and the learners' needs (Campbell & Cleveland-Innes, 2005; Jackson et al., 2013). The CoI presumes that knowledge is gained within a community of learners via the interaction of the cognitive, social, and teaching presences [Figure 14].

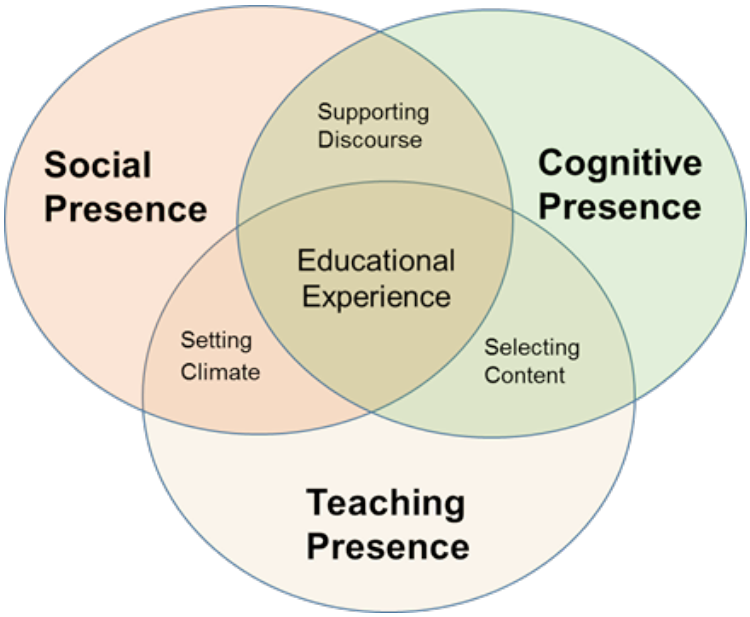


**Figure 14: Community of Inquiry Framework (Garrison et al., 2000)**

Cognitive presence explains the ongoing stages of "Practical Inquiry" (PI) (Akyol & Garrison, 2011b). It also refers to the progress of students' thinking through the PI phases (ranged from the 'triggering event' phase; to the 'exploration phase'; then 'Integration'; until reaching the 'resolution phase' of the problem) [Figure 15].

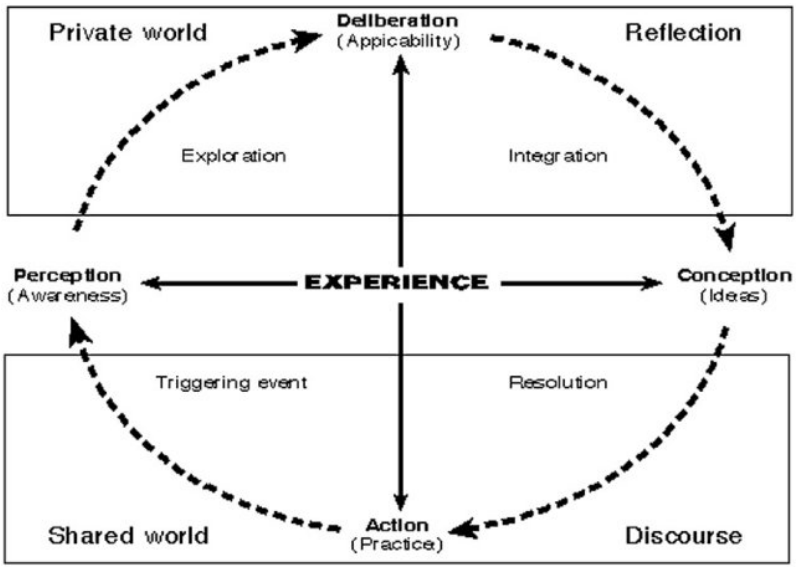


**Figure 15: Practical inquiry of cognitive presence (Garrison et al., 2000).**

Social presence implies the learners' ability "to project themselves socially and emotionally, thereby being perceived as 'real people' in mediated communication", whereas cognitive presence is the "extent to which learners can construct and confirm meaning through sustained reflection and discourse" (Garrison et al., 2000, p. 90). Teaching presence refers to "the design, facilitation, and direction of cognitive and social presences to realise personally meaningful and educationally worthwhile learning outcomes" (Anderson et al., 2001, p. 5).

These CoI presences, as mentioned earlier, are interconnected and useful in building a collaborative community and students' satisfaction and perceived learning (Caskurlu et al., 2020). The founders of the CoI framework analysed postings (in the discussion forums) by looking for keywords of each presence (indicators) that grouped to form the categories as explained in Table 17 (Garrison et al., 2010a). To apply CoI in nursing education, understanding nurse educators' views, using the framework's coding template (Table 17), on current course design and evaluation is vital. This paper will use the coding template to analyse the qualitative data.

**Table 17: CoI coding template**

| Elements | Categories | Indicators (examples only) |
|---|---|---|
| **Cognitive Presence** | • Triggering Event<br>• Exploration<br>• Integration<br>• Resolution | • Sense of puzzlement<br>• Information exchange<br>• Connecting ideas<br>• Application / new ideas |
| **Social Presence** | • Affective (personal) expression<br>• Open Communication<br>• Group Cohesion | • Self-projection/expressing Emotions<br>• Trust/Risk-free expression<br>• Encouraging collaboration/ interactivity |
| **Teaching Presence** | • Design And organisation<br>• Facilitating Discourse<br>• Direct Instruction | • Setting curriculum and activities<br>• Shaping constructive exchange<br>• Focusing and resolving issues |

### 6.2.5 Research questions

The following questions guide the second phase of the research:

1- How do nurse educators use an educational theoretical framework and create a learning community in online/blended courses?

2- Is there any implicit relationship between the current online/blended course design and the CoI framework constructs?

### 6.2.6 Method and Design

#### *6.2.6.1 Study design*

This second phase (qualitative), as part of an explanatory sequential mixed methods design, employed semi-structured interviews with nurse educators.

#### *6.2.6.2 Participants and setting*

Twelve universities from six Australian states and territories were approached to participate in this study. An invitation email was sent to the Deans of the colleges/schools of nursing, with a request to distribute the 'Invitation Letter' and 'Participant Information Sheet' to nurse educators. The nurse educators were included if they had experience in online/blended course design/evaluation for undergraduate or postgraduate courses. Five colleges/schools agreed to disseminate the invitation email, and this resulted in 11 nurse educators purposefully selected from three universities who participated in semi-structured interviews.

#### *6.2.6.3 Ethical consideration*

The study was approved by the University Research Ethics Committee [Project Number: ####]. All participants received a written Information Sheet about the study's purpose, recruitment, and data collection process. Participants were assured that they could withdraw at any time of the interview, and their identities would not be revealed in research reports or related publications. All participants signed consent forms before the interviews. The participants were assured that any identifying information would be removed, and the data would be stored on a secured university cloud storage that the researcher and his supervisors could only access. Also, comments would not be linked directly to anyone participant or organisation.

#### *6.2.6.4 Data Collection*

Eleven audio-recorded semi-structured interviews were conducted – by the first author- between August and October 2019, and the interview questions were informed by phase-I of the PhD study (Smadi et al., 2019). Questions were open-ended to ensure that the participants could share their experiences and views. For example, "What do you see your role as a teacher [or designer] in an online/blended course?" "How do you get your students to think [critically]?". The interview schedule piloted before the data collection. For the full interview schedule, please see the supplementary file.

The participants had a chance to express their opinions regarding any issues they felt necessary to discuss. The interviews took place at a prearranged dates, time through face-to-face meetings or video conference and lasted 49 - 90 minutes. The data was collected over three months until saturation was reached.

#### *6.2.6.5 Data analysis*

Interviews were transcribed using NVivo™ transcription software and analysed using deductive thematic analysis informed by Braun and Clarke (2006). The deductive thematic analysis allows the researcher to analyse the data with pre-existing coding frame. This paper used the CoI framework coding template [Table 17] (Garrison et al., 2010a) that represent the three presences and their subcategories to guide the analysis. Data analysis began with listening to the interviews' audio recordings [corrected the transcription to ensure content validity] and reading the transcripts to be familiarised with the data. This was followed by open coding by the first author using the auto search tools of Nvivo ™ 12 [auto code wizard, query wizard, and text search] to get initial insights. A 'focused coding' was conducted following (Table 17) CoI framework coding template (Cognitive, teaching and social presences indicators) (Garrison et al., 2000). The next step involved reviewing codes and nodes against each transcript and searched for candidate sub-themes and themes. All candidate sub-themes and themes were discussed and reviewed in the project's weekly meetings that ensured the findings' validity and reliability. Finally, all themes were defined, named, contextualised, and presented with the participants' excerpts. The COreQ criteria for reporting qualitative research used to guide the reporting of this paper. Please see the supplementary file "COreQ criteria checklist".

To ensure the credibility, dependability, and transferability of this paper, the three supervisors and co-authors checked the processes. Credibility was established by the 'fit' of the respondent views (quotations) to represent themes. Also, since the dependability is the logical, traceable, and transparent research process documentation (Tobin & Begley, 2004), this paper ensured dependability and transferability by providing the readers with a complete description of the processes and the tables ( interview schedule, CoI coding template, the focus coding table).

### 6.2.7 Findings

The participants' demographics indicated that all participants had postgraduate qualifications; two doctorates, five doctorates' candidates, and four master's degrees. Six participants taught in the undergraduate programs and five in the graduate program. Their teaching experience ranged from 6 to 30 years. The courses taught by the participants ranged between clinical, non-clinical, undergraduate and postgraduate.

The interview data's coding and analysis, using the coding template table of the CoI framework, generated three major themes: cognitive, social, and teaching presences and their indicators. Each of the themes is presented with the participants' excerpts in the following sections.

#### *6.2.7.1 Cognitive Presence*

The cognitive presence was analysed using the Practical Inquiry (PI) phases: (a) triggering, (b) exploration, (c) integration, and (d) resolution. Please refer to Figure 15:: the Practical Inquiry phases in section 6.1.5

**Initiate thinking (triggering)**

Participants used various approaches to trigger the thinking process, including asking questions in the form of a written assignment, using discussion forums, and problem-based scenarios or case-based assignments. The 'triggering thinking' is embedded in nursing courses and often represented by case/problem-based learning. It gave the students a problem or inquiry and allowed them to reach the resolution phase of PI. The case or problem was considered as the trigger to think. For example, two participants stated:

> *"So, problem-based learning is probably another area that is on the topic [course] as well. So, the students are given scenarios within their tutorials and are got to solve the problems then." [Participant 4]*
>
> *"I try and use varieties [of teaching techniques], so problem-based learning, critical thinking, prioritisation. A lot of case-based scenario type things because it is a clinical course. Probably problem-based learning and critical inquiry that sort of stuff." [Participant 8]*

**Exchanging information in a class setting (Exploration)**

In the exploration phase, exchanging information was common in the online/blended courses. This study's participants described that group work and information sharing via discussion forums allowed them to collaborate and exchange ideas to reach a solution. One participant commented:

> *"[I] divide the students into small groups and request them to answer a question and then share the information back to the other groups which will achieve the exploration" also he said: "[a] learning activity that students do in small groups, and then I ask them to share that information back." [Participant 11]*

One participant encourages students to discuss and share the information among themselves.

> *"So, in each of the topics, there is a scenario for that week. By discussing the scenario, they get to share their knowledge about what they already know." [Participant 4]*

**Scaffolding (Integration)**

This study showed that the best example was the connection of knowledge (scaffolding) between classroom learnings and clinical placement experience. For example,

> *"…also, placement as well. they have got some experiences that they can bring [to the discussion forum or workshop], and they can share it with the class." [participant 4]*

One participant commented that scaffolding of knowledge occurred among the modules in one course and also in the whole nursing curriculum:

> *"So, the whole nursing curriculum is scaffolded; we are scaffolding learning throughout the course but also throughout the whole degree." [Participant 2]*

**Applying learnt knowledge (Resolution)**

Most participants reported that they asked students to reflect or evaluate a scenario and share their learnt knowledge with other students. To reach the resolution phase, the students inquire about the dilemma, then contextualise the problem and find the solutions for the presentation. To present a

learnt knowledge to a group, the student should reach the resolution phase by inquiry, contextualisation, and scaffolding with previous knowledge.

One participant stated how the students presented information to the group.

> *"But that whole group has to present the information that they have identified and talked [in presentation] back to the rest of the group." [Participant 11]*

Another participant stated that to present the knowledge; the student needed to prepare their presentations and understand what they were presenting:

> *"[giving an in-service] …I think it does help them more because they need to do some research on it to back [their knowledge] it up." [Participant 7]*

The participants expressed that they asked the students to reflect and evaluate their outcomes of the assignments. For example,

> *"I get them [the students] to have a look at -through the critical reasoning cycle- to focus on evaluating the outcomes and the impact of those outcomes […..] and be reflective of their contributions and what they did do and how they had a positive impact." [Participant 11]*

#### *6.2.7.2 Social Presence*

In the study, achieving the SP components in the absence of students' physical presence was identified as challenging. Most participants expressed their concerns regarding the effect of being isolated and distanced in fully online learning in the postgraduate space, as one participant said:

> *"I think that there are some students each semester in this topic [course] that have not been a student at this [university] before, and they feel isolated. They feel very isolated. From some of the emails that I have been getting from them." [Participant 3]*

Another participant explained the need for facilitators' presence for the students:

> *"What I learnt was, they say: be quick be active get in the air, let them see you because they are in a black hole they do not know if anyone is there." [Participant 5]*

The following sections present the three SP indicators from the participants' views.

**Affective communication (emotional expression)**

Participants in this study created an inclusionary and safe space for the students by employing strategies, such as person-centred communication, welcoming videos, disclosure and acknowledging the students' personal and work experience. Two participants discussed their communication strategies in the following excerpts:

> *"We always personalise all the correspondence to them so call them by their names" [Participant 10]*
>
> *"I do get them to talk about their own experience, their experience can be with their social networks within their own family within their community, and I do ask them to share examples from their experience." [Participant 11]*

One participant said:

> *"I always start with something else that's funny like I like to sit with a glass of wine watching the sunset, and then you get loads of people coming in. Also, why I love glass wine, and that then relaxes everyone." [Participant 6]*

## Open communication

In this study, the participants facilitated communication and created a safe and respectful environment. One participant used the web room to allow for 'open communication' between students and the instructor:

> *"We have a web room, and it is available any time for students to use. So, if they want to meet other students in the room, they can." [Participant 11]*

One participant designed the course to help students feel safe in an environment of sharing knowledge:

> *"There is a lot of proximal processes that are going on across the semester, that designed to help students to feel safe in a context of sharing, growing and developing their understanding of strength-based nursing." [Participant 11]*

**The use of social media among learning community groups**

One participant noted that the use of social media pages allows students to feel safe and enable the exchange of ideas within a risk-free environment:

> *"But I think that we need to support that [social media groups], and we need to find a platform where it can happen efficiently and safely. I think it is always hard having a tutor or topic [course] coordinator involved in a group like that, though because they are not going to say things that they would normally say to each other." [Participant 2]*

Two participants commented that the familiarity with, and the quick access to, the social media apps plays a major role in their use for educational groups:

> *"I think [Facebook pages] ... is a social networking platform that the students are familiar with." [Participant 1]*

> *"There is an app on their phone they can quickly type it in, whereas they have to log onto [university learning system] and there is not an app for like the discussion forums, and I just think it is not very user-friendly." [Participant 2]*

**Group cohesion**

This study showed that the participants used small discussion groups and wiki pages to help build 'group cohesion'.

> *"They are all allocated a group, and they do get in there and discuss many things within their groups, and that sort of student-led but I offer feedback to them." [Participant 9]*

> *"Now, the Wikis …but they were great because we got them to work in groups, so we used to try and do quite a lot of group work so that they worked as a group together rather than in isolation. So that encouraged them to join in and to do something and contribute." [Participant 5]*

#### *6.2.7.3 Teaching Presence*

According to the CoI framework, the educators' roles fall into three primary categories: design and organisation, facilitating discourse, and direct instruction.

**Design and organisation**

Interviews with the participants revealed that their roles were: to meet the learning outcomes, setting curriculum, designing and organising contents and assessments, and to deciding the time allocation to each activity. For example,

> *"My role as a topic coordinator is to ensure that as many students can meet those learning outcomes in the time that they are enrolled in the topics." [Participant 1]*

The educators talked about their role in designing the courses, but they did not consider themselves as pedagogical designers, as one participant stated below:

> *"I do not think you are [as a topic coordinator] a designer, and I think that is where we have so much trouble because our expertise is not design." [Participant 5]*

However, another participant described herself as a designer by experience and was not taught to design; she said:

> *"I did not. When I first started this. But the more I got into it, the more I am learning about it. Yeah, I see my design. And that is something I was not taught. That is something I have had to pick up on my own as I have gone along." [Participant 6]*

Few participants declared themselves as content experts rather than pedagogical designers. For example,

> *"I think you need to have resource people to peer-review your courses and make sure that they are pedagogically sound and interactive and getting the desired outcomes as required." [Participant 8]*

**Facilitating reflection and discourse (Discussion Forum)**

In this study, most participants described their role as a facilitator of knowledge and critical discourse.

> *"From my perspective, my role is to facilitate knowledge." [Participant 2]*

Some participants further expressed that she was not dominating the discussion but wanted to allow students to run the session. For example,

*"I must admit that even when I am doing the web conference, I will try and facilitate discussion rather than dominate the discussion." [Participant 10]*

Few participants used the discussion forums as part of their course assessment and linked it to a grade to encourage students to participate and engage in the discussion. For example,

*"They have to submit as part of their assignment four best discussion posts. Part of the criteria is that they have to participate actively." [Participant 10]*

One participant also graded the discussion forum but did not continue because the process was laborious and disempowered and disengaged some students:

*"But I know when students just post something [in the discussion forum] that they think no one is going to read until it gets assessed, then that is disempowering and disengaging." [Participant 11]*

The data analysis indicated that most participants thought their discussion forums were underused, and the students used social media pages to form independent educational groups. For example,

*"I would say it is underused. because I feel that if students do not feel comfortable with that platform, they will not use it." [Participant 4]*

Some participants reported that the course's subject, the student's level and number, the user-friendly platform, and the tutor's involvement in the discussion would affect the forum's usability and engagement. For example, one participant shared her experience that her course is for postgraduate students and that the course is relatively straight forward and does not need discussion forums.

*"I think this course is pretty straightforward because it is a clinically-based course. So, I do not know that the forums are really necessary for this course". [Participant 8]*

Another participant expressed that her tutor team was involved in two out of four discussion forums, and she noticed that the students engaged more when the tutors were involved in the discussion. Few participants explicitly described their practice of facilitating the course, similar to the premise of CoI about creating an educational community. For example,

*"So it was about their engagement within, which is quite interesting because a 'community of inquiry' is very much about not only just being the sage but using*

*your community to be the guide to the side. And so, it is more about using the community of students to be the ones that directed a lot of it, and you sat back more and facilitated rather than taught." [Participant 5]*

**Direct Instruction**

From the direct instruction lens, the participants in this study considered themselves content experts who guided the students through the course. For example,

*"I always see my role [as an educator]. It has much expert knowledge to bring to the students [...] So, what I try to do, is not to be didactic. I try to create a context where students engage with learning material, and through that engagement, we grow in our understanding of how that knowledge base can be translated into nursing practice." [Participant 11]*

Also, one participant provided clear instructions for students:

*"So that was all around instructive learning rather than just long written segments. The instructions were said to be very clear and very concise. So, we did a lot of that instructional language which was incredibly important, and it was drummed into us that we didn't do a lot of this [clear and concise instruction]." [Participant 5]*

### 6.2.8 Discussion

This paper aims to identify, explicit or implicit, components of the CoI framework [cognitive, teaching, and social presences] by understanding the current design and evaluation practices from the lens of the CoI framework. The interviews with nurse educators presented evidence of the CoI framework's embedment in current practices of designing and delivering courses in Australia. The cognitive presence was implied, but the educators shared some intriguing aspects of applying social and teaching presences in online/blended learning. These aspects ranged from students' discussion forums to social media usages to educators' role. The CoI presences were complex and overlapped - an absence of the components in one category led to a lack in another – therefore, this section provides insights into the CoI framework practices by explaining and comparing the study findings with the literature.

**Cognitive Presence**

Cognitive presence is based on the cyclic relationship between personal understanding and shared dialogue among learners' community. In this study, Nursing education used case/problem learning in teaching the core courses and played an essential role in triggering the thinking process. The participants focused on designing courses and implemented strategies like discussion forums, study groups, classroom/placement knowledge, reflections, and presentations to achieve cognitive presence (practical inquiry). The findings are consistent with the literature in describing that the best form of 'initiating the thinking' [triggering] gives students a problem and provides the scope to collaborate in exploring solutions (Garrison, 2017). As this study found that nurse educators used the small groups to encourage the discussions and reflections, Garrison (2017, p. 121 ) extends his views, as this study presented, by emphasising that students reach a solution to the dilemma both individually and collaboratively [exchange information] by stimulating discourse and reflection via small groups. This idea of collaboration goes to the heart of the cognitive presence that assumes critical thinking starts individually and refined and sharpened collectively within the educational community. The participants in this study agreed as Garrison (2017) implies, that their role is to guide discussion and correct any divergence of thinking to focus on the activities' goals.

The third phase of practical inquiry was scaffolding, where students connected and integrated ideas to construct meaning (Akyol & Garrison, 2011b). Literature reports about the educators' critical role in scaffolding; for example, Garrison and Arbaugh (2007) state that this phase 'typically requires enhanced teaching presence to probe and diagnose ideas so that learners will move to higher-level thinking developing their ideas'. Also, Chambers et al. (2013) note that successful scaffolding includes clear direction from the educator to reduce uncertainty and disappointment. As Feng et al. (2017) found that the greatest need for scaffolding of cognitive presence occurs towards the end of the course, the participants of this study used the scaffolding to bridge the knowledge gap in different levels: (a) between the class and clinical placement; (b) throughout the modules; and (c) throughout the whole curriculum. Finally, in the resolution phase, a dilemma (problem) is resolved or reduced by producing a meaningful answer or a specific explanation (Akyol & Garrison, 2011b). When the learners' understanding is not clear, it initiates a new inquiry, and the cycle starts again to reach a

new resolution (Garrison, 2017). This study's finding informs that the 'resolution phase' can be reached in nursing education by asking the learners to reflect or present their newly gained knowledge to the other learners. These findings are congruent with the CoI framework explanation of this phase, where the learners could 'apply newly gained knowledge to educational contexts or workplace settings' (Garrison & Arbaugh, 2007).

**Social Presence**

Social presence was found necessary to establish relationships and create a secure environment to provide a foundation for a deep and meaningful educational experience (Garrison, 2017). Social presence is positively associated with the quality of cognitive presence (Lee, 2014). The participants implicitly embedded some aspects of social presence while lacking in others. The first indicator, 'emotional expression /affective communication,' means the ability and confidence to express feelings related to the educational experience (Garrison et al., 2000). The participants created a feeling of inclusion and a safe environment by applying person-centred communication, welcoming videos, disclosing and acknowledging their personal and work experiences. Garrison (2017) described the same activities as a way of 'affective communication' among the educational community. Consequently, the 'affective communication' concept is embedded in the current nursing course design practices, supporting critical thinking elements and reducing social isolation.

The second indicator is 'Open communication' which means "reciprocal and respectful exchanges" and is achieved by recognising others' contributions. This indicator is built through recognising, complimenting, and responding to others' questions and contributions in an educational group (Garrison, 2017). Despite the build of 'open communication' (e.g. discussion forums, web rooms, feeling safe) into the courses, the participants reported that their students were using social media pages to communicate among themselves. Social media platforms for learning purposes show positive outcomes when used professionally and can complement CoI indicators, primarily the cognitive presence via blogs and discussions (Jones et al., 2016; Popescu & Badea, 2020). As per the nurse educators, the students used social media platforms independently and without including educators. This led to a lack of teaching presence while the educators lost contact and the

discussions' guidance and focus. These preferences were explained by the familiarity of the students with social media platform(s); quick accessibility to the social media apps via student's devices; difficulty in using the online university platform compared to the social media apps; and ability to critique the tutor or lecturer without any consequences. This tells us that the students may not feel safe in expressing their emotions and communicating in the educators' attendance. The discussion forums platform provided by the university, according to the participants, needed upgrading with a user-friendly interface and required a more personal touch to attract the student's attention. They achieved full SP in nursing courses needed more attention to open communication and feeling comfortable using discussion tools.

The next category that helps to build and support a sense of belonging is 'group cohesion'. It can be achieved by the students' active and open communication in the study group. Garrison (2017, p. 46) describes this category as the essence of SP, and in this phase, addressing others by name and the use of inclusive pronouns such as "we" and "our" are important. The participants' practice showed that they use personal and customised communication terms to achieve group cohesion. This study showed that the current nursing educators' practices need attention to the 'open communication' in the SP indicator.

**Teaching Presence**

According to Garrison (2017), teaching presence is "not possible without the expertise of pedagogically experienced and knowledgeable teachers who can identify worthwhile content, organise learning activities, guide the discourse, offer additional sources of information, diagnose misconceptions, and provide conceptual order when required". Also, teaching presence is considered as the binding element that connects the framework, and it balances cognitive and social issues to match the learning outcomes (Garrison et al., 2000). The indicators of teaching presence in this study were partially embedded in the current nurse educators' practices. The 'design and organisation' is the first indicator representing the macro-level structure and process before the launch of a course (Garrison, 2017). Nurse educators currently design and participate in designing their courses without formal education, and they rely on their teaching experience to guide their

design techniques. The lack of design experience and clear instructions to the student impacted the critical thinking and the progress of cognitive presence phases (Hosler & Arend, 2012). All the participants expressed their appreciation of having more training and time to design, guide of an instructional designer or peer review of a colleague who is an expert in a particular field (Khalil & Elkhider, 2016).

The second indicator is the 'facilitating reflection and discourse' (discussion forum) among students. The participants view their roles to facilitate the discourse and enable the construction of personal and meaningful discussion while collaboratively shaping the mutual understanding (Garrison, 2017). Online and blended courses use discussion forums to promote community feeling and encourage collaboration (Gaston & Lynch, 2019). The feeling of belonging to a community is consistent with the principle of 'emotional expression' in the SP, enabling students to freely express their emotions and views without coercion. The study participants considered themselves as a facilitator of knowledge and discourse. Nevertheless, the discussion forums are underused for different reasons [e.g. large student numbers in a single course, the nature of the subject, the tutor's involvement, the difficulty platform and the level of the students] that reduces their ability to facilitate the discussion forums.

The third indicator is the 'direct instruction' where the educators practice direction role by providing coherent content and purposeful external resources with the ability to give students timely feedback and evaluation to assess their understanding (Cleveland-Innes et al., 2007). The idea of direct instruction gives the students a feeling of teaching presence and a sense of guidance. For example, direct instruction could be used to focus the discussion on specific issues if the educators felt the discussion was moving away from the topic (Garrison, 2017). Being content proficient, the participated nurse educators in this study guided their students when necessary.

In teaching presence, this study found that the participants had an intense focus on achieving the courses' learning outcomes and is consistent with the CoI principles. For example, Garrison (2017) views as essential the role and responsibility of educators within the TP element, that is, to achieve the learning outcomes on time while giving the students the space to work collaboratively by engaging with other learners. As described by the CoI framework, the idea of teaching presence

offers an insightful and illustrative framework for identifying the vital roles of successful online instructors.

We argue that the CoI presences are partially embedded in the current practices (As reported in teaching presence, a lack of an educational framework contributed to an inadequate course design experience among the educators. The social presence categories are also achieved, but they lacked in the ‘open communication’ category. This lacking affected the students’ feeling of owning the space, their satisfaction, and engagement. It led to the lack of nurse educators fulfilling the ‘facilitating discourse’ role in teaching presence. However, cognitive presence categories [Practical Inquiry phases] found to be embedded using problem/case-based learning in the nursing curriculum.

Table 18). As reported in teaching presence, a lack of an educational framework contributed to an inadequate course design experience among the educators. The social presence categories are also achieved, but they lacked in the ‘open communication’ category. This lacking affected the students’ feeling of owning the space, their satisfaction, and engagement. It led to the lack of nurse educators fulfilling the ‘facilitating discourse’ role in teaching presence. However, cognitive presence categories [Practical Inquiry phases] found to be embedded using problem/case-based learning in the nursing curriculum.

**Table 18: Summary of the study findings in comparison to the CoI indicators**

| Elements | CoI Categories | Practices in nursing education match CoI | Practices divergent to CoI indicators |
|---|---|---|---|
| **Cognitive Presence** | • Triggering Event | • Case-based scenario | |
| | • Exploration | • Exchange information via groups | |
| | • Integration | • Scaffolding of (theory«practical) knowledge | |
| | • Resolution | • Applying learnt knowledge (presentations) | |
| **Social Presence** | • Affective (personal) Expression | • Safe space/ person-centred communication | |
| | • Open Communication | • The use of discussion forums/web conference room | The use of social media pages independently |
| | • Group Cohesion | • The use of Wiki pages and group assignment | |
| **Teaching Presence** | • Design and Organisation | • Setting curriculum/ content only expert | Not a design expert |
| | • Facilitating Discourse | • Facilitator of knowledge and discussion | Underused platforms |
| | • Direct Instruction | • Instructive learning | |

### 6.2.9 Limitations

Eleven participants from three universities limited the varieties of data and transferability of the findings. Nonetheless, their practical insights enriched the discussion on social, cognitive, and teaching presences in Australian nursing education. An interview or survey with the participating nurse educators' students would provide a precise understanding of the course design and evaluation experiences. More studies are warranted in the nursing courses' evaluations, using the CoI framework valid evaluation tool, from the students' perspectives and organisation point of view.

### 6.2.10 Conclusion

This paper used the CoI framework as a lens to explain the nurse educators' practices in courses design and evaluation. The CoI presences [i.e. cognitive, social, teaching] were embedded implicitly in course design by creating a learning community, content development, problem-based learning,

and discussion forums. The cognitive presence was ultimately achieved using case/problem-based learning. Apart from this, there was an existence of teaching presence, but lacking in the category of ‘design and organisation’. Also, the category of ‘open communication’ was not fulfilled in social presence, as the students used social media pages to form a learning community, excluding their educators. At the existence of problem-based learning [i.e. cognitive presence], this paper adds to the knowledge that explicit application of CoI social and teaching presences is essential to build a collaborative learning community in Australian nursing education.

Despite the negative impact of the COVID-19 pandemic and restrictions on the health system, economy, travel, and people’s daily lives, there is a positive impact occurring. The vast attention and focus on online learning forced many educational institutions and researchers to think genuinely about online education benefits. This quick shift exposed real issues with online education that needed to be fixed globally. Resources and infrastructures are as necessary as the need for an educational framework and better training to design and evaluate the courses. This study suggests that nurse educators, specifically the novice, need support and guidance to include more social and teaching indicators when designing and delivering courses. Training, Workshops, and mentoring on the CoI framework can help educators improve their designing skills to ensure students’ worthwhile educational experience. While the universities are in the challenge of promoting online/blended education, the direct application of the CoI framework supports quality course design and helps attract and retain more students.

## 6.3 Part B:

The following manuscript is Part B of Phase II of this study. It explores the factors affecting the adoption of CoI in nursing education and uses the CoI framework and Meleis's Transition Theory to provide insight into how to facilitate the transition [from role insufficiencies to role supplementation to role mastery] of nursing academics' journeys in adopting teaching, social, and cognitive presences for online higher education.

**Citation**

Smadi, O., Chamberlain, D., Shifaza, F., & Hamiduzzaman, M. (2021b). Factors affecting the adoption of the Community of Inquiry Framework in Australian online nursing education: A transition theory perspective. *Nurse Education in Practice*, *55*, 103166. https://doi.org/https://doi.org/10.1016/j.nepr.2021.103166

Journal impact factor: 2.28 Citations: 0

### 6.3.1 Authorship statement and publication background

My third publication represents the analysis of the qualitative semi-structured interviews in exploring the factors that influence the adoption of the CoI framework into nursing education. While analysing the data, I noticed that applying deductive thematic analysis using a CoI framework limited the results to the issues related to the CoI framework only. A number of themes emerged beyond the CoI framework, which were divided into barriers and facilitators to adopting the CoI into online nursing education. Likewise, I am still answering the research questions about the factors that influence the adoption of CoI.

*Data collection and analysis:* I used the same data from the interviews as were used for the second article. With the help of Professor Diane Chamberlain, Dr Fathimath Shifaza, and Dr Mohammad Hamiduzzaman as advisors and co-authors of this publication, I extracted the factors and grouped them into themes. I then noticed those novice nursing educators were faced with more challenges in transitioning to their new role in academia and becoming online educators.

*Writing and editing:* I wrote the first manuscript draft for publication entitled, “Factors Affecting the Adoption of the Community of Inquiry Framework in Australian Blended Nursing Education: A Transition Theory Perspective”. I designed all the figures in the results section. I approached the Nurse Educator in Practice journal for publication, and the editors wanted the following issues to be addressed:

- Clarify the study design and methods
- Some grammar and structure to be reviewed

As I was the corresponding author, I drafted a feedback table to address the comments. With further discussion and confirmation from the supervisory team, the article was accepted for publication.

**Factors Affecting the Adoption of the Community of Inquiry Framework in Australian Blended Nursing Education: A Transition Theory Perspective**

### 6.3.2 Abstract

**Objectives:** This paper aims to understand the factors influencing the adoption of teaching, social, and cognitive presence in online nursing education and explain the novice nurse academics journey in adopting these aspects.

**Background:** The quality of the online/blended courses is about the content and a need for suitable pedagogical design, clear instructions, and a collaborative environment based on a valid and reliable theoretical framework.

**Design and settings:** A qualitative study involves semi-structured interviews with 11 nurse academics from three Australian Universities, and thematic analysis was conducted.

**Results and conclusions:** The Community of Inquiry framework informed three themes including several factors in each from the interviews: (1) Teaching Presence (TP): the lack of understanding and use of educational theory, the inadequate course evaluation, and the resources scarcity found to be the factors affecting the adoption of TP in online nursing education; (2) Social Presence: the engagement difficulty and creating a learning community affected the adoption of SP; and (3) Cognitive Presence: the variety in learning styles and formative assessment and discussion forums found to be affecting the adoption of CP. This study paper is unique because it uses the Community of Inquiry framework and Meleis's Transition Theory and provides insight on how to facilitate the transition [from role insufficiencies to role supplementation to role mastery] of nurse academics' journey in adopting teaching, social and cognitive presence for online higher education.

### 6.3.3 Introduction

This paper explains nurse academics' journeys and experiences in embedding teaching, social, and cognitive presences in online higher education in Australia. Department of Education and Training (2018) indicates that the number of online students is growing faster than on-campus. Currently, the COVID-19 restrictions to achieve physical distancing and prevent cross-infection force educational

institutions to change the learning mode to online (Seymour-Walsh et al., 2020). The benefits of online education – fully online or blended - include flexibility to access the material anytime and anywhere, varieties of learning styles, peer interaction, less cost, and self-paced study (Leidl et al., 2020). The quality of the online/blended courses is about the content and a need for suitable pedagogical design, clear instructions, and a collaborative environment based on a valid and reliable theoretical framework (Garrison, 2017). Thus, adopting online/blended education skills becomes integral to the nurse academics' role.

In nursing, the transition of many novice nurse academics from clinical practice to academia occurred without formal preparation for the new role and adequate knowledge about educational theory and course design (Oermann, 2017). These novice academics possess little knowledge or experience in applying pedagogical theories, and many find themselves ill-equipped for the challenges they contend with(Gregory & Lodge, 2015; Schoening, 2013). They are not technology and curriculum design experts, leading to stress, confusion, and lack of application and planning in their academic role (Gillett-Swan, 2017; Oermann, 2017). Novice academics can feel disempowered and lack confidence, leading to an intention of leaving academia early if there are no peer and institutional support (Cranford, 2013). Supporting the novice academics to use an educational theoretical framework will improve nurses' knowledge and skills in course design and evaluation, build and retain the nurse academic workforce, and translate into improved pedagogy.

Consequently, the pedagogy benefits extend to build a skilled workforce that generates better health outcomes (e.g. better allocation of resources, smaller number of complications, and lower death rate), thus improving the wellbeing of all Australians (Schwartz, 2019). The most suitable educational theoretical framework to address the collaborative nature of nursing courses while incorporating the online environment is yet to be explored.

Social constructivism, a pedagogical theory, assume knowledge formation via social interactions and critical discourse(Garrison, 2017). Accordingly, this theory brings a collaborative profession like nursing and online/blended learning mode together (Brandon & All, 2010; Swan et al., 2009; Zhang & Cui, 2018). The Community of Inquiry (CoI), designed for online/blended learning, is a social

constructivism-informed framework comprising of cognitive, social and teaching presence, which in combination reduces the gap between pedagogy, technology, and learners' needs [Figure 16] (Garrison, 2017; Jackson et al., 2013). Cognitive presence explains the progress of students' thinking, whereas social presence implies the learners' ability to engage themselves socially and emotionally with the learning materials and environment(Green et al., 2014). Teaching presence means "the design, facilitation, and direction of cognitive and social presences to realise personally meaningful and educationally worthwhile learning outcomes" (Garrison, 2017). These interconnected presences of the CoI framework have been applied in many disciplines to design and evaluate courses, such as education, linguistic, and business(Anagnostopoulos et al., 2005; Arnold & Ducate, 2006; Castellanos-Reyes, 2020; Shea, 2006). However, some nursing courses are practical and applied in nature; therefore, for nurse academics with minimum experience in online/blended modes, adopting the CoI framework in nursing education presents a challenge(Padilla & Kreider, 2018a).

Only a few studies have investigated the CoI framework in health care professionals' higher education, but the attention is growing (Cox-Davenport, 2014; Stephens & Hennefer, 2013). The nurse academics' journey from clinical practice into academia and the challenges and enablers of adopting the CoI framework are not widely featured in the literature, particularly in Australia. To fill the knowledge gaps, this paper draws on the experience of the nurse academics' pedagogy to understand the factors that influence the adoption of teaching, social and cognitive presences in online/blended nursing higher education. Also, this paper will provide a theoretical explanation of the nurse academics' transition from face-to-face to online/blended modes using Meleis et al. (2000) transition theory and CoI framework.

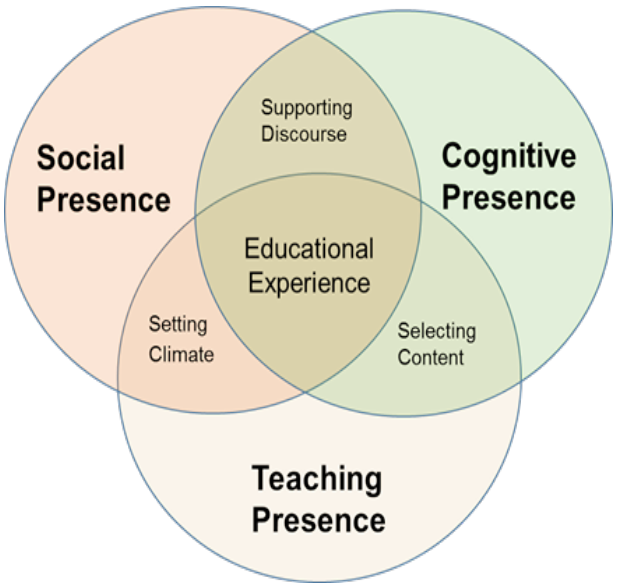


**Figure 16: Community of Inquiry framework (Garrison et al., 2000)**

There are enormous expectations of nurse educators to shift university courses to online/blended mode efficiently. The fast change in the educator's role to design online/blended courses required knowledge in how an adult learns in an online environment and required awareness of the transition process that the educators are going through. The contemporary transitions theories like Benner's Novice to expert, Bridges transition theory and Duchsher's stages transition theory are linear in looking at the transition from one phase to another (Graf et al., 2020). While on the other hand, Meleis et al. (2000) transition theory focuses on understanding the nature of role changing by understanding the different phases in a cyclical pattern. Melei's transition theory recognizes the transition triggers as developmental (becoming pregnant or new parent), health and illness (from health to chronic), situational (change in a situation), and organisational (change in leadership or policy). The transition from clinical to nurse educators or face-to-face to online/blended educators considered a situational trigger that fits with Meleis transition theory, as will be discussed later. Therefore, this paper uses Meleis et al. (2000) transition theory to create a developmental pathway to identify the factors that help nurse educators transition to online/blended education from the lens of the CoI framework.

### 6.3.4 Research questions

The following questions guided this paper:

1- What factors (challenges or facilitators) influence the adoption of the CoI framework into online/ blended nursing pedagogy?

### 6.3.5 Method and design

#### *6.3.5.1 Study Design*

This paper is reporting part of Phase II (Qualitative) of a sequential-explanatory mixed-methods project. It involves semi-structured interviews with nurse academics and thematic analysis to understand the factors of CoI presences adoption in online/blended course design and evaluation.

#### *6.3.5.2 Participants and setting*

Deans of nursing schools from twelve universities across Australia were approached to distribute an Invitation Email along with an Information Sheet to nurse academics. The nurse academics were recruited if they involved in online/blended course design/evaluation for undergraduate and or postgraduate courses. Eleven academics from three universities participated in interviews.

#### *6.3.5.3 Data Collection*

The Phase-I study (Smadi et al., 2019) informed semi-structured interview questions. Questions were open-ended to ensure that the participants could share their experiences and views. For example, “what do you see your role as a teacher [or designer] in an online/blended course?” “how do you get your students to think [critically]?”. Prompts were used to guide the discussion. The interview schedule piloted before the data collection. Please refer to the supplementary files for the full interview schedule. The participants had a chance to reflect on factors they felt necessary to discuss. Interviews with interstate participants were conducted using videoconferencing and interview time ranged from 49 to 90 minutes. The data collected between August and October 2019. The data was collected over two months until saturation was reached.

#### *6.3.5.4 Data analysis*

Interviews were audio-recorded and transcribed using NVivo™ transcription software by the first author. The transcribed data were analysed using the deductive thematic analysis method by Braun and Clarke (2006). Data analysis started with listening to the interviews' audio recordings [corrected the transcription to ensure content validity] and reading the transcripts to be familiarised with the data and followed by open coding using auto search tools of NVivo™ 12 [auto code wizard, query wizard, and text search] to get initial insights. The next step involved reviewing codes and nodes against each transcript and searched for candidate sub-themes and themes. Next, all candidate sub-themes and themes were discussed and reviewed in the project's weekly meetings that ensured the findings' validity and reliability. Finally, all themes were defined, named, contextualised, and presented with the participants' excerpts. Please see *Table* 19: that includes all the quotes related to the subthemes and themes.

We utilized the COreQ criteria for reporting qualitative research to manage the writing of this paper. Please see the supplementary file "COreQ criteria checklist". The Creditability, transferability, and dependability of this paper ensured by checking the three supervisors to the steps of the study in details. The represented themes of this paper 'fit' the view of the participants (quotes) to ensure credibility. This paper provided logical, traceable and transparent research process documentation as supplementary files to ensure dependability (Tobin & Begley, 2004).

**Table 19: Themes formation**

| Teaching Presence | |
|---|---|
| **Course design and evaluation** | • *… it is a big job, and there is no real structure. From my perspective, coming into this as a new person, I was very surprised there was not some sort of [theoretical] framework. [Participant Two]*<br>• *Well, I suppose it is the two-edged sword because it is a course about education, but it does not use a [theoretical] framework in that. However, it had learning outcomes, and then the students were assessed on those learning outcomes. [Participant Ten]* |

| | |
|---|---|
| | • *They are [Learning Outcomes] the gold standard of what we want these students to achieve and come out with at the end of this topic. [Participant Three]*<br><br>• *Well, we have assessment items that are linked with each of the learning outcomes. [Participant Ten]*<br><br>• *So, all of sudden the lecturer who is supposed to be an expert in a subject matter has now had to become e-learning and a technology expert as well… they are limits and time-poor! [Participant Five]*<br><br>• *You still need people that understand how that ... how you can get that information to the person in the right way … the right colour, the right background all those things can make a difference for a student. [Participant five]*<br><br>• *I think you need to have people to peer review your course and make sure that [it is]… pedagogically sound [that] ... they are interactive and they are getting the desired outcomes ... it is required. And I think it is really important to get the student feedback about the courses what is working for them what is not. [Participant Eight]*<br><br>• *I think there is very little evaluation of the nursing courses. [There is] very little evaluation of the subjects. There is students' feedback that we get every semester. But, this is manipulated very easily to ensure that it does not get flagged by the higher levels of the institution. … there are efforts to evaluate, but that was purely for the bureaucratic administrative purpose, it was not for learning outcomes purposes. [Participant Eleven]*<br><br>• *I also find that you will get those students that love the course and will give feedback. And, those students that did not like it, will give feedback and 'the in-between', you do not get that high number [of feedback] ... [Participant Four]* |
| **Content co-creation and delivery** | • *And then I say to them: the unit [course] explicitly provides numerous opportunities for the co-creation of the learning material and the attainment of shared understanding based on our collective wisdom. So, I write in the unit outline we are expecting their active participation in the unit ... that is* |

| | |
|---|---|
| | *a community of learning. It is better off, creating a space where they [students] are contributing to the learning material. [Participant Eleven]*<br><br>• *Time is my biggest challenge and recognition of that time. [Online] is labour intensive too. And I do not have the time, and I would need all the resources for that because there are just one other tutor and me. [Participant Eight]*<br><br>• *For me, I just do not have the time to be doing loads of web conferences. [Participant Seven]* |
| **Resources availability** | • *I think that we are dedicated to improving all the time, which is excellent, but we need the resources. And for me, that is what stands out. Currently, we have four people in the Learning Management System staff support unit, and that is for the entire College. And that is not enough if we are looking at [further] the development. Now we are just covering the bare minimum, and they have generally put out fires every day. [Participant Two]*<br><br>• *That is an interesting point because, yes, I would say resources are lacking. However, I have noticed that my colleagues are not even using the resources that we have. Most of them are not even using that system in the LMS. [Participant Six]*<br><br>• *The next year the link is gone! You are going to have no control over [third party resource]. So that is why I wanted resources that could have been built up. [Participant Five]*<br><br>• *I think [our LMS] is terrible. I am honest. There are a lot of better platforms. I think there is a lot of casual workforces which means that it is difficult. And I also think staff support in terms of learning from people that more experienced and that are experts in designing curriculums is lacking. [Participant Two]*<br><br>• *I could not because there are many [students] numbers. If I had more staff, we would look at doing things like collaborate. We would do it at a real-time small discussion group between groups of four or five. It is just impossible with such large numbers and only two tutors and all the other* |

| | |
|---|---|
| | *topics and everything else going on so, which is a shame, I think that its time consuming during those things. [Participant Three]* |
| **Social Presence** | |
| ***Engagement*** | • … it is difficult because [teaching] a skill can sometimes be hard to try and get across in an online forum like if you have got an x-ray. You are standing with someone in the room with the context of the patient it makes a lot more sense to you than if I am talking about a random x-ray that I have pulled up and I am now talking about this x-ray, so it is to try and get some real context for the student is tricky in that medium [online]. [Participant Six]<br>• I think engagement is reduced in online teaching because students are intimidated by sharing their video, sharing their audio, and speaking up. … I think that it is harder to create engagement with students online. [Participant Two]<br>• So, if I have got a student who is borderline, I can go back there [LMS log in], and I can have a look at whether they were engaging [by their logs] in the course or not. … I have a program that runs ... where anyone has not logged in for seven days, I send them an email. [Participant Ten]<br>• The learning management system has activity logs all that shows me is that if they have clicked on, it shows me how many clicks they have made in a day - in a week - in a month - over the whole course. [Participant One]<br>• It is a real learning experience with a real person and a real case study. [Participant Eleven]<br>• Me and my teaching team, we are engaged in those discussions. [We] treat the students on an equal basis. The students can see us there [ in the discussion group]. [Participant Eleven]<br>• They are [students] looking for 'edutainment' where they get the educational message, but they are also engaged with it. [Participant One] |
| **Creating a learning community** | • *So, you know that a community of learning is incredibly important, especially in postgrad. I would suggest that it is 'horses for courses' and there is a time when you must deliver content that is just required that they need to learn. And that does not necessarily need a community of learners. [Participant Five]* |

| | |
|---|---|
| | • *Ultimately, I think it a supportive [learning] community that helps students realise that they are not alone in some of the topics that they rise. [Participant Seven]*<br>• *What I want to create in my online space is a feeling that they are not alone. They are [students] actually in a group of people and are learning together. [Participant Six]*<br>• *Some of them do feel isolated because, for this postgraduate study, a lot of them are adult learners, and a lot of them also have not studied for a long time. So, there is that anxiety. [Participant Three]*<br>• *Well, in a discussion forum the minute you only have one or two students you have lost the whole community of learning approach because you cannot develop that within with one or two people. [Participant Five]*<br>• *I think that creating a community is difficult … and we have got so many students, and it is hard to provide personalised education when we are trying to target all sorts of learners from different pathways. different ages ... different backgrounds … different languages. [Participant Two]*<br>• |
| **Cognitive Presence** | |
| **Variety in learning styles** | • *I have been here for over 30 years, and I think that moving to this e-learning format has provided a lot more variety. Has been able to accommodate many different learning styles. [Participant Eight]*<br>• *I like blended. I think instead of spoon-feeding the students; I think the students choose their journey. I think it is a lot more flexible for the students. The students can do their online components in times suits them. So, it means that they are more flexible about their lives. And they take ownership of it. [Participant One]*<br>• *Most people can learn at their own pace, certainly, for shift workers and single mothers, they can just do it when they want to do it. it is totally flexible. [Participant Nine]* |

| | |
|---|---|
| | • *I think [the] undergrad need[s] blended. I just do not ever see a time when undergrad would not need that face-to-face ability to learn skills and practice things with each other like role-playing and things like that. [Participant Six]* |
| **Use of summative assessment and discussion forums** | • *So, there are ten quizzes that are delivered online, and I can get each week or each day I can go in and see who has completed the quiz and how much they are getting correct. [Participant One]*<br>• *Through assessments. I tend to make sure there is some critical thinking in all of the assessments. [Participant Nine]*<br>• *So, what we were developing was their [student] critical thinking rather than necessarily knowing about the subject area. The student took on a role, so they became actors in this, and so they were not allowed to be the nurse. [Participant Five]*<br>• *Well, I think discussion forums are great for learning and for people to think out loud so and because they have to write stuff that they are thinking out loud and so what that enables them to do is make sense of what they know with their position in whatever thing they are talking about. And it makes them go and look. [Participant Five]*<br>• *One example, they have to choose a case they worked on, and they have to take that case and describe what they did, how they assessed the patient and then go on to consider pathophysiology and relate that to the treatment and management that patient gets. So, it makes them thinks about the in-depth side of things and how that treatment will affect the patient. And then they have to reflect on the nursing caretaking on board the current evidence for that and see if their nursing can match that evidence for that patient presentation. [Participant Nine]* |

### 6.3.6 Ethical consideration

The University Research Ethics Committee approved the project activities [*Project Number:8307*]. All participants received an Information Sheet about the study's purpose, recruitment, and data collection process. They were assured that they could withdraw themselves at any time during the interview, and

their identity would remain anonymous in reports or publications. All participants signed consent forms before the interviews.

### 6.3.7 Findings

The eleven participants had postgraduate qualification ranging from master to doctorate with teaching experience varying from 6-30 years. Only four participants had more than five years of experience in online course design. The other seven participants were novice educators in terms of online/blended teaching experience. The courses taught by the participants ranged between clinical, non-clinical undergraduate and postgraduate, fully online or blended.

Three themes, including seven sub-themes, emerged, these were: teaching presence [course design and evaluation, content co-creation and delivery, and availability of resources]; social presence [engagement, and creating a learning community], and cognitive presence [variety in learning styles, and use of formative assessment and discussion forums]. As original work of this thesis, Figure 17 below illustrates the factors that affect the adoption of the CoI framework into online nursing education.

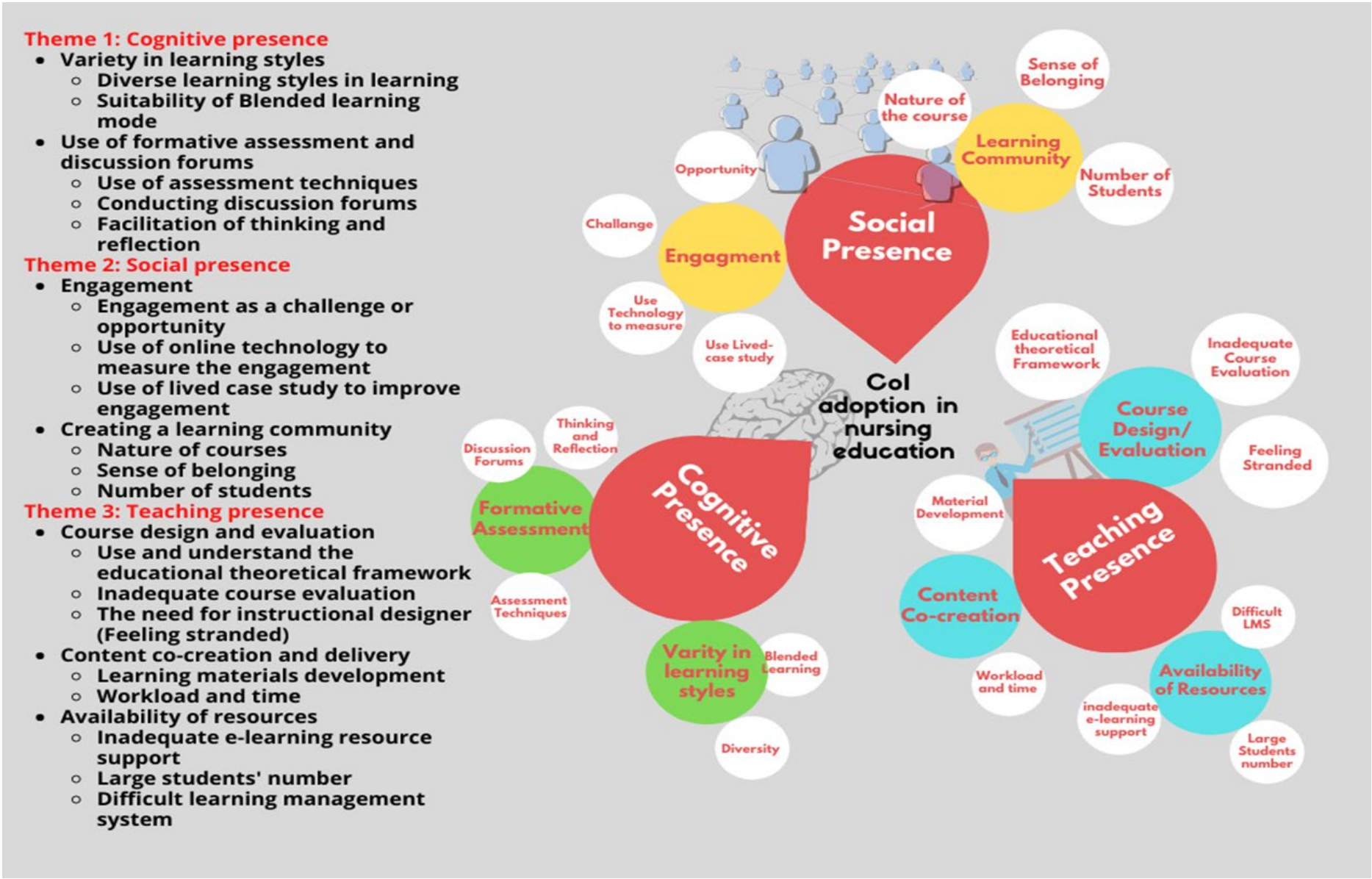


**Figure 17: The CoI adoption model into nursing education**

#### *6.3.7.1 Theme one: Teaching Presence*

The theme presented the factors affecting the participants' designing, facilitating, and directing the courses, ranging from course design to content delivery to resource availability.

***Course design and evaluation***

Novice nurse academics indicated a lack of theoretical framework use in course design, and this was related to their insufficient teaching experience and underestimation of the importance of framework use. At the same time, few experienced academics demonstrated some skills in framework usage. A lack of experience and understanding and intense use of learning outcomes as a framework restricted all academics, especially novice ones, in the course design and evaluation process. The nurse academics used the learning outcomes intensely as a framework by aligning the activities and assessments to it. The intense use of learning outcomes as a framework led the nurse educators to rely only on generic evaluation tools like Students Evaluation of Teaching (SET).

> *… it is a big job, and there is no real structure. From my perspective, coming into this as a new person, I was very surprised there was not some sort of [theoretical] framework. [Participant Two]*

Being content experts but lack expertise in pedagogy and technology, they highlighted a need for an instructional designer to evaluate the appropriateness of colour and background, amount of information and text, and navigation of interface in a course. Novice academics also stated their reliance on experienced colleagues and students' feedback to review/evaluate their courses. Consequently, few participants extended their discussion by saying that the course evaluation survey was completed by the students who liked or hated the courses, therefore yielded a very low response rate that diminished the possibility of utilising the feedback in revising the course appropriately.

> *I think you need to have people to peer review your course and make sure that [it is]… pedagogically sound. [Participant Eight]*

***Content co-creation and delivery***

Several participants talked about students' involvement in the co-creation of learning materials and explained how this involvement offered them a feeling of collaboration and increased engagement.

However, although co-creation of content formed a collaborative learning environment, the nurse academics faced with heavy workload resulted in a limited time for embedding all teaching aspects in courses, such as regular and frequent video conferences.

> *"And then I say to them: the unit explicitly provides numerous opportunities for the co-creation of the learning material and the attainment of shared understanding based on our collective wisdom. So, I write in the unit outline we are expecting their active participation in the unit ... that is a community of learning. It is better off, creating a space where they [students] are contributing to the learning material". [Participant Eleven]*

***Resource's availability***

There were limited technical support and inadequate e-learning resources. The participants confirmed a requirement for more technical staff to help with Information Technology (IT). However, few shared their experiences that available resources [Green Room for making tutorial videos, video conferences, learning analytics insights, emoji] in learning management system website were not being used because they lack the pedagogical and technical knowledge. This could be because of the difficulty of using the LMS, especially for casual nurse educators unfamiliar with such a complex system.

A lack of use and understanding of educational theoretical framework was common among nurse academics, which combined with a bureaucratic evaluation process, a requirement of an instructional designer, shortage of e-learning resources and inadequate staff to students ratio created a barrier in achieving teaching presence fully in the courses.

#### *6.3.7.2 Theme two: Social Presence*

The social presence represented an environment whereby engaging students and academics and building a learning community emerged as essential features of the learners' social and emotional presence as 'real people' in online/blended communication.

***Engagement***

Students' engagement in online education was identified as a challenge by some participants and as an opportunity by others. For example, in teaching clinical skills, practical skills were harder to be delivered and assessed online. The involvement of the teaching team in discussion forums was crucial to improving students' engagement with learning materials.

> *'[I]t is difficult because [teaching] a skill can sometimes be hard to try and get across in an online forum." [Participant Six]*

Nevertheless, the academics used online technology to get a sense and feeling of students' engagement with materials and other students. Learning was shaped by how students were engaged and participated in educational activities. By using the LMS log file, the academics tracked the students' activities and engagement with materials. The LMS log file generates information about the clicked items and how many hours students spent on modules and readings.

> *"The learning management system has activity logs. It shows me how many clicks they have made in a day - in a week - in a month - over the whole course." [Participant One]*

In an example of an innovative way of using the online mode to get the learner to engage with a lived case study and communicate with it, one participant used a live case study of a patient who survived a stroke at a young age and spent a long time in ICU, and then after discharged, she wrote a book about her survival. The academic hosted the patient in webinar sessions and allowed the students to engage with the person and ask questions that enabled them to understand difficult concepts and write their assignment.

> *"It is a real learning experience with a real person and a real case study." [Participant Eleven]*

One participant with more than 30-years of teaching experience said that using the online platforms allowed her to introduce highly interactive and engaging materials for her students, such as high-quality media, weekly online quizzes, and fun education.

***Creating a learning community***

The participants described the importance of building a learning community but expressed some concerns about the nature of courses, a sense of belonging, and students' number. Some academics had a belief that the nature of the courses and content played a significant role in forming a learning community.

> *"So, you know that a community of learning is incredibly important, especially in postgrad. I would suggest that it is 'horses for courses'. And there is a time when you must deliver content […] that does not necessarily need a community of learners. [Participant Five]*

The absence of physical and social interaction challenged the academics in teaching the clinical subjects in nursing; this, in turn, affected the formation of a learning community among and between the students and academics. Belonging to a community of learners in an online/blended course was vital to allow the students to share and learn from each other.

> *"What I want to create in my online space is a feeling that they are not alone. They are [the students] actually in a group of people and are learning together." [Participant Six]*

While building a learning community was essential to ensure social presence in online education, concern was about isolation, especially for postgraduate students. The analysis presented how the students' number [inadequate or large] affected a learning community's formation.

> *"Creating a community is difficult … and we have got so many students, and it is hard to provide personalised education when we are trying to target all sorts of learners from different pathways. different ages ... different backgrounds … different languages." [Participant Two]*

#### *6.3.7.3 Theme three: Cognitive Presence*

The ‘cognitive presence’ characterised the nursing education how the variety in learning styles and formative assessments and discussion forums influenced the students’ ability to construct the meaning of concepts through sustained communication.

***Variety in learning styles***

The blended learning offered the students various learning styles that helped build their unique style and ‘own’ learning journey. All participants mentioned the flexibility of online/blended teaching modes for the students and tutors. Such flexibility attracted the students who were busy working or single mothers. The participants verified that blended learning was more suitable in nursing courses design. Online components allowed the students to think and study their own way and style, whereas the face-to-face components were used to teach the clinical skills.

***Use of formative assessment and discussion forums***

The participants used different formative assessments, including questioning, online activities, quizzes, and role play. Similarly, the academics' use of forums or web conferences encouraged the students to read, think, and research before participating in the discussion.

The participants used case-based learning to facilitate students' reflection on the information they were reading, presenting, or writing. Facilitating the learners to think and reflect through discussion forums enabled them to demonstrate their cognitive presence in online/blended education

### 6.3.8 Discussion and conclusions

This paper findings provide insight into nurse academics' journey and explain how they experience challenges and facilitators in embedding teaching, social, and cognitive presences of the CoI framework in higher education. As original work of this paper, Figure 18 below illustrate the nurse academics' journey, and the identified factors in adopting the CoI framework align with Meleis's (2000) Transition Theory. Mainstream transition theories talked about the journey from novice to expert in terms of skills acquisition, like Benner's (1982) theory that looked at five stages of proficiency like clinical skills development. However, unlike Benner, the transition theory of Meleis is comprehensive and systematic that focuses on periods and forms of transition. A transition in a role often involves a period of instability, confusion, and distress (Meleis, 2010). According to Meleis (2010), in a healthy transition, interacting, feeling connected, developing confidence, coping, and mastery are the benchmarks. For example, a clinician who decides to become an academic without adequate preparation [role insufficiency] has scope to overcome challenges by preventative measures and interventions [role supplementation] to reach a healthy transition [role mastery] (Meleis, 2010). The factors or conditions found in this paper are situated at personal or organisational levels and affect the transition (Meleis, 2010). The personal factors include individual beliefs, attitudes, preparation, knowledge, and organisational factors related to resource availability. While this paper presents several intriguing findings, the following sections discuss the teaching, social and cognitive factors in adopting CoI that challenge nurse academics' journey in role insufficiency and how they reach towards the healthy transition from novice to mastery [role supplementation and role mastery]. Healthy transition to role mastery is not linear and is only achieved by academics, some earlier than others, depending on the level of support and previous work and life experience in adopting new changes.

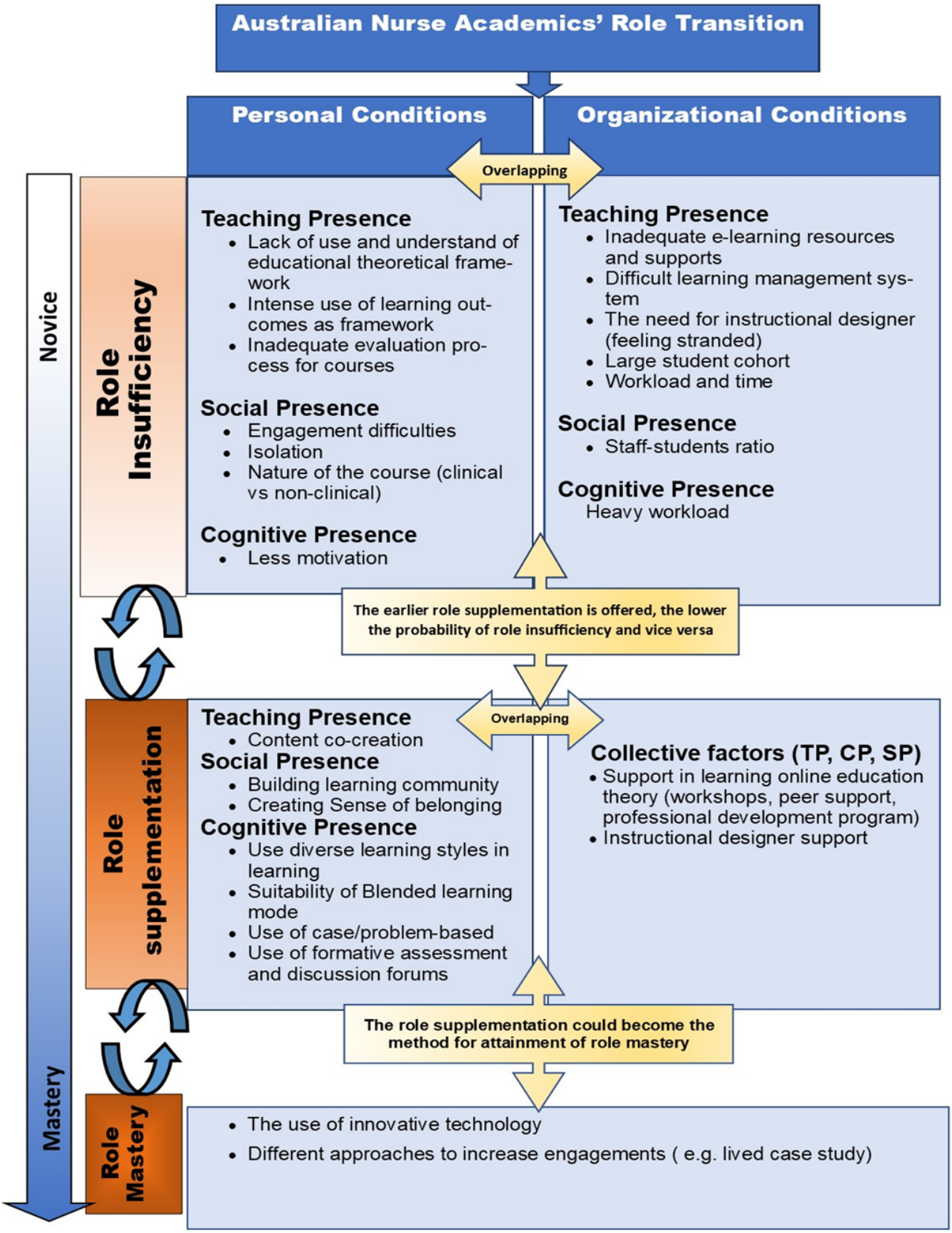


**Figure 18: Australian nurse academics' role transition (Original work of this thesis)**

#### *6.3.8.1 Role insufficiency*

In the personal conditions, as per Figure 18, the role insufficiency is anticipated when nurse academics are a novice because of a lack of knowledge of educational theory and intense beliefs in ‘learning outcomes’ as a framework to design topics. In Khalil and Elkhider (2016) and Weidman (2013) studies, the academics confirmed that transition into a new role without experience and knowledge of educational theory affected their teaching presence. Weidman (2013)extended the discussion that the clinician ‘knowledge as an 'expert’ in content is inadequate to design learning materials when they become novice academics. World Health Organization (2016) noted that nursing academics should possess an understanding of theories and principles of adult learning that underpin the course design. According to this paper’s participants, a lack of knowledge of educational theories led them to use ‘learning outcomes’ as a framework in courses design. They relied on linking the ‘learning outcomes’ with assessment tasks, activities, and exams to achieve the educational goals, which was identified as suboptimal practice [narrow, procedural, articulate and done for administrative purposes] in an academic environment (Panigrahi et al., 2018; Prøitz, 2015). As a result of this, Student Evaluation of Teaching [SET] was used controversially as the only source of evaluation and conducted for bureaucratic reasons (Peterson, 2016). The lack of educational theory knowledge, the use of learning outcomes instead of educational theory, and the use of SET only, directly affected the design, facilitation, and direction of cognitive and social presence [teaching presence] in achieving the educational outcomes.

The role insufficiency affected the adoption of the social and cognitive presence under the scope of personal conditions. If not corrected, it will lead to an unhealthy transition. Novice academics experienced engagement difficulties and isolation [especially in clinical topics], which led to a low motivation amongst their learning communities, including academics and students. For example, this paper confirmed with the literature that the students’ meaningful engagement overall was essential to achieve social presence. Nevertheless, the practical elements [‘Hands-on’ learning and learning by doing] in clinical topics were viewed as too complicated to develop their engagement in online/blended mode, especially in [complex

specialty-specific course] postgraduate courses (Smith and Caplin (2012). As a result, the lack of social presence will affect the satisfaction and the quality of perceived learning among students (Richardson et al., 2017).

Regarding the organisational conditions, as per Figure 18, the organisational resources facilitate or inhibit transitions, according to Meleis (2010). In this paper, the role insufficiency related teaching presence can be narrowed down to inadequate resources, overwhelming workload, lack of time, complicated learning management systems, large student numbers and being stranded without an appropriate instructional designer. The academics were unable to change the organisational conditions and felt they had no voice. These experiences were validated with previous studies of (Hande et al., 2020; Petit dit Dariel et al., 2013). For example, despite that Petit dit Dariel et al. (2013) identified the lack of time and training as obstacles to adopting online learning in general, they stated that a more profound examination reflects the need for pedagogical experiences of nurse academics to reduce the resistance in adoption to the change of online/blended learning. The specific understanding of nurse academics' views and voice towards the adoption of pedagogical theories could facilitate the identification of organizational challenges. The novice nurse academics of this paper acknowledged the need for building a successful learning community related both to teaching and social presence, but they identified the size of the learning community as a role insufficiency. To form a community of learning, you need to have an optimal number of students. Those topics which are large [over 500 students] make it impossible to achieve meaningful engagement, as do tiny numbers [less than 5]. This impacted the engagement of the learning community.

Adopting CoI into nursing education needs an early recognition and awareness of role insufficiencies from the university [organisation], which will facilitate a smoother role supplementation to counterbalance the disequilibrium caused by the unhealthy transition.

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#### *6.3.8.2 Role supplementation*

Role supplementation refers to the measures or interventions that can be preventive (before transition) and therapeutic (during transition) for role insufficiency conditions. In current nursing education practice, some teaching and social presence conditions used as role supplementation to alleviate the role insufficiency conditions. In teaching presence, students' involvement in creating the learning materials increased the collaboration, engagement, and motivation for the academics and the students. This affected the social presence by facilitating the learning community establishment and creating a sense of belonging. These two factors of role supplementation are useful for students' learning experience and will help the nurse academics in their healthy transition [Figure 18]. As the sense of belonging is rooted in the collaborative online Community of Inquiry (Garrison, 2017), Chamberlain et al. (2019) found in her early career transition model. The successful transition of nurse academics relies on developing a sense of belonging to create a positive emotional and cognitive outcome.

Cognitive presence found to be applicable to and fully embedded in nursing pedagogy (Smadi et al., 2021; Smadi et al., 2019). This paper found that cognitive presence improved the “role supplementation” process of novice nurse academics because the use of various learning styles and the use of assessments and discussion forums were useful in triggering students’ thinking. This paper and the literature were consensual that blended learning was suited and highly valued to design nursing courses because of flexibility and the ability to provide various learning styles (Smadi et al., 2019; Stephens & Hennefer, 2013). Online components of blended learning created a platform for the students to watch, review, read, and reply to the discussions at their own pace, time, and location, while face-to-face teaching established ‘hands-on’ clinical skills. Posey et al. (2014) corroborated that blended learning for students required online components for refining students' critical thinking, clinical judgment, problem-solving skills and diagnostic reasoning. The literature showed that web 2.0 tools, including - but not limited to - social networking, podcasting, media sharing, Wiki, Blogs, etc., enhanced by interactive problem-solving, case demonstrations, quizzes with immediate feedback have

the potential to enhance the student's cognitive skills in online/blended nursing courses (Eales-Reynolds et al., 2012; Wei & Hu, 2018).

At the role supplementation stage, learning new knowledge and change behaviours to reconstruct the concept of himself/herself in the new role, together with institutional support, are essential (Meleis, 2010). The transition into an academics' role without formal preparation or support increases role ambiguity, stress and anxiety (Weidman, 2013), with the risk of leaving academia in 5 years (Cranford, 2013). To help novice nurse academics in a successful transition, educational institutions should offer early professional development programs like induction, internship, mentorship, coaching, and workshops on education theories and course design and valuation methods. While training and mentoring would provide the knowledge and understanding of the benefits of educational theory [i.e., Community of Inquiry framework] use, adequate time allocation in their workload and technical support improves the quality of courses and the learning environment outcomes. For example, support from a professional instructional designer can produce high-quality courses needed to develop future nurses who will serve the community with safe practice. Different techniques were suggested by the experienced nurse academics of this paper and other studies for the novice academics to overcome them. Therefore, role supplementation will lead to role mastery and produce a successful transition.

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#### *6.3.8.3 Role Mastery*

The role mastery is indicative and an outcome to a successful transition. Besides the other outcomes, mastery of new skills, feeling connected, interacting, developing confidence, and coping, the nurse academics adopt new identities through mastery toward a new role (Meleis, 2010). This paper showed that experienced academics reached role mastery by adopting new innovative skills and techniques. For example, the experienced nurse academics use of LMS log files [Learning analytics] and lived-case study increased interaction within the learners' community. According to the literature, similar to this paper findings, the learning analytics could inform academics about the students' number of clicks and times spent on a task and provide the academics with scope to early communicate with non-interactive/less engaged students (Soffer & Cohen, 2019). The implications of using learning analytics, if used optimally, can lead to improvement of course design, an increase of retention rates and the possibility of the personalised learning journey for the students (Department of Education and Training, 2018).

The communication with a lived case [the coma survival patient] via web conferences provided an opportunity for the students to engage with the case and being proactive in establishing the learning community. The literature complements this paper's findings that establishing an online community allowed students to network with each other, reduced isolation, enhanced satisfaction and retention with the program, and increased students sense of belonging

(Pilcher, 2017). While the transition process is stressful and can exhaust the novice nurse academics, the suggested techniques, as above, would help these novice academics to be a collaborative teacher who engages and interact with the students via online if they have the proper support.

This paper has three limitations: (a) only the nurse academics' views were reported; (b) the vital nurse academics perspectives would strengthen if the content of the courses and students were included, and (c) participants' low number limits the result to the participated three institutions. Nevertheless, the data generated from the interviews with academics at different stages of their careers contributed to the knowledge by informing the novice ones' transition process and the supports they need in applying the educational theoretical framework successfully.

In conclusion, this paper is unique because it uses the CoI framework and transition theory to explain the nurse academics' journey in adopting teaching, social and cognitive presence in online higher education. Using the CoI lens, the factors [i.e. lack understanding of educational theory, inadequate course evaluation, resources scarcity, engagement difficulty, variety in learning styles, and formative assessment and discussion forums] that challenge or facilitate novice academics applying teaching, social and cognitive presence were identified. From role transition to supplementation to mastery, while novice academics undergo a period of stress with a lack of educational theory knowledge, the experienced ones can develop a learning community. This transition process exhausts novice academics to face difficulties in engaging and interacting with students online if they do not have adequate skills and support. During the shift from clinical to higher education teaching, they feel isolated without a mentor or instructional designer to help use an educational theoretical framework, e.g., CoI presences, in courses design and evaluation. The novice educator faced with role insufficiency [barriers to adopting CoI] uses role supplementation [enablers and resources] to reaches role mastery [the healthy transition]. The earlier role supplementation is offered, the lower the probability of role insufficiency and vice versa. Ultimately, as per transition theory, role supplementation is

the method for attainment of role mastery. The awareness of the transition periods and the positive attitude towards technology and the online environment are vital in achieving the adoption of CoI. A successful and healthy transition requires adequate knowledge, skills and institutional support for novice academics. Pertinent to the COVID-19 pandemic, recommendation from the Tertiary Education Quality and Standards Agency – the Australian higher education accreditation body– on applying the CoI framework is essential for a healthy transition to online education.

### 6.3.9 Limitations

Date transferability is limited by the number of interviews, the participated universities, and the volunteer bias. However, the purposefully selected participants' views deepened the understanding of the factors to adopt the CoI framework into nursing education. Also, focused the discussion on the importance of the transition experience to online education. The study could be strengthened by surveying nursing students using the validated CoI framework tool.

# CHAPTER SEVEN: INTEGRATION AND DISCUSSION OF METAINFERENCES

The purpose of this study was to determine the awareness and applicability of the CoI framework to online/blended nursing education in Australia. Also explored were the barriers and facilitators to the use of the framework. This chapter outlines the process of integration in this explanatory sequential mixed-methods design study leading to the development of metainferences. Metainferences emerged from the integration of each sequential study presented in Chapters Five and Six. The following research questions were developed, and the findings were presented and discussed in detail in Chapters Five and Six. The questions that underpinned the research were:

- How is the CoI framework understood and used (if at all) in online undergraduate nursing courses in Australia?
- What are the opinions of nursing educators [academics] on the applicability of the three core concepts of the CoI framework for blended or online nursing education in Australia?
- What do the blended/online nursing educators [academics] in Australian universities know about the CoI framework?
- How do nursing academics use educational theoretical frameworks in the design and evaluation of their courses?
- Is there an implicit relationship between the design and evaluation of blended or online courses and the constructs of the CoI?
- What are the factors that affect the adoption of the CoI framework in Australian nursing education?

Chapter Five reported that the CoI framework presences were applicable, where the explicit use of a theoretical framework in online/blended course design was lacking. Part A of Chapter Six demonstrated that the indicators of cognitive presence were fully embedded, while the

teaching and social presence indicators were only partially embedded in current online/blended course design and evaluation practices. Part B of Chapter Six identified the: (1) barriers and facilitators to achieving teaching presence, including a lack of understanding of educational theory and its use, inadequate course evaluation, and resource scarcity; (2) barriers and facilitators to achieving social presence were the difficulties in attaining engagement and creating a learning community; and (3) barriers and facilitators to cognitive presence, including the variety and diversity of learning styles, and the use of formative assessment and discussion forums. Meleis's transition theory provided a framework for understanding the journey of the novice nursing educator to online higher education. This chapter will provide an explanation of the integration process and the interpretation of the findings that confirmed the role of the CoI framework in transforming nursing higher education, and the transition of the novice educator into their new role.

## 7.1 Integration Levels

Integration is defined by Fetters and Molina-Azorin (2017, p. 293) as linking "qualitative and quantitative approaches and dimensions together to create a new whole or a more holistic understanding than achieved by either alone". This chapter outlines the integration and merging of evidence from Phase I (Chapter Five), the national online survey and Phase II (Chapters Six), the semi-structured interviews with nursing academics. The aim was to use the qualitative results to clarify and interpret the quantitative results (Creswell & Creswell, 2017; Schoonenboom & Johnson, 2017). Integration strategies yielded metainferences that extended beyond each phase, but also expanded the understanding of the broader multi-level phenomenon of nursing higher education. This research used an integrated design that ensured that the qualitative and quantitative data were interdependent. For example, the quantitative phase was used to build the qualitative interview schedule, while the qualitative phase was used to explain the results of the quantitative phase. According to Schoonenboom and Johnson (2017), this type of design is more complex than a component design, where the phases are independent of each other. The use of this complex design provided the

opportunity to identify complementary, convergence, and/or divergence inferences and to bring together the complexity in the integration process while analysing and interpreting the data, leading to metainferences.

The pragmatic worldview embraces naturalism, and the process of inquiry as being social in nature (Morgan, 2014). Therefore, this research did not change or manipulate the study environment; instead, it studied it in its natural setting without any researcher interference. In this study, the quantitative results from Phase I embodied objectivity and the generalisability component of the mixed-methods, whereas the qualitative component of the semi-structured interviews represented subjectivity. The integration of both sets of findings produced the intersubjective reality that explained the integration of both sets of data by using the abductive approach, which empowered the explanatory sequential approach. This research considered the creation of reality from the interaction between the researcher and the data to form new knowledge and experience. These knowledge and experience claims are not absolute, and will always be open to review (fallibilism). However, the participants' experiences and the researcher's interpretations were used to answer the research inquiry.

Integration in this study happened at three levels [i.e., design integration; method integration; and interpretation and reporting integration], as explained in detail in the methodology chapter (Chapter Two):

Level I – In design integration, the researcher collected and analysed the quantitative data, which informed the qualitative data collection and analysis.

Level II – In method integration, Phase I [i.e., quantitative data] was used to build and inform the interview schedule that was employed to collect the qualitative data. The building of the qualitative interview schedule was to explain the quantitative results. Table 20 showed the quantitative findings and how they were used to build and generate the semi-structured interview questions and the rationale for them. For example, in Phase I, blended learning was viewed by 90% of nursing educators as the most suitable mode for nursing education, and

this led to asking the participants in Phase II to talk about their course and what they were trying to achieve with it, with prompting questions about the most suitable learning mode for nursing education.

**Table 20: The building of the interview schedule from the quantitative findings and the rationale for the questions**

| Relevant quantitative findings | | Semi-structured interview questions (with different prompting questions to clarify significant issues) | The rationale for the question |
|---|---|---|---|
| **Teaching mode, Instructional design, and the use of a framework** | Blended learning is the most suitable learning mode by 90% of participants. | **Question 1:** Could you tell me about your online or blended nursing course/topic? What are you trying to achieve with it? | Warm-up question to explain the current mode of teaching, and what the link is between the objectives and how the design is used to achieve them. |
| | • 90% involved in curriculum/course design<br>• 90% found instructional and use of the framework as essential.<br>• 70% do not use an explicit theoretical framework. | **Question 2:** When you designed your course/topic, did you have a design framework in mind? >> **Yes:** How did you apply it? **No:** what, if any, criteria did you use to makes sure your topic/course was well designed? | Elicit reasoning behind which current practices use a theoretical framework to design courses. Also, discover the evaluation process of the courses. |
| **Applicability of CoI** | **Social** presence applicability Overall mean (4.03/5) SD (.62) | **Question 3 [Social presence]:** One of the things I am interested in is how courses help students to feel as they are part of a community of learners? What aspects of your topic/course do you think promote this? | Extract the three CoI presences and their categories and explain if they are explicitly embedded in current nursing practices. |
| | **Teaching** presence applicability Overall mean (4.19/5) SD (.76). TP is the most important presence. | **Question 4 [Teaching presence]:** What do you see as your role as a teacher [or designer] in an online or blended course? | |
| | **Cognitive** presence applicability Overall mean (4.14) SD (.74) | **Question 5 [Cognitive presence]:** How do you go about getting your students to think? | |
| | | **Question 6:** Would you like to add anything to the topic of this interview? | |
| **Awareness and knowledge of CoI framework** | • 21% are familiar with the CoI framework. | **Question 7 (Have you heard of the CoI framework?)** If yes, tell me more about this framework. If no, I conclude the interview by thanking them. | Explain the low level of familiarity with the CoI framework. |

Level III – This study used the narrative approach in reporting, and specifically, the staged approach, where integration occurs in multi-stage mixed-methods studies, and the results of each step are reported in stages as the data are analysed and published separately (Creswell, 2015; Fetters et al., 2013). Also, the findings from both phases were organised in an integrated results table as a joint display to allow for a side-by-side comparison to provide evidence to clarify the results of both methods (Table 21). Integrating the two phases allowed the researcher to verify, enhance, validate, and explain the results of the two phases. In this study, the joint display created a visual interpretation with a clear comparison of the quantitative and qualitative data.

**Table 21: Joint display of the two phases and the transitional model of novice educators. [LMS= Learning Management Systems]**

| Phase I | | | | Phase II | | CoI transforms transition theory | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Elements** | **Overall mean M (SD) applicability score** 1=not applicable, 5= strongly applicable | **CoI Categories** | **Practices in nursing education match CoI** | **Practices divergent from CoI indicators** | **Factors which affect the adoption of CoI** | **Role insufficiency conditions** | | **Role supplementation** | | **Role Mastery** |
| | | | | | | **Personal** | **Organisational** | **Personal** | **Organisational** | |
| **Cognitive Presence** | 4.03 (.74) | Triggering event | Case-based scenario | | **Problem Based Learning**<br>**Variety in learning styles**<br>Diverse learning styles in learning<br>Suitability of blended learning mode<br>**Use of formative assessment and discussion forums**<br>Use of assessment techniques<br>Conducting discussion forums<br>Facilitation of thinking and reflection<br>**Workload**<br>**Less motivation** | Less motivation | Heavy workload | PBL<br>Varieties in learning styles<br>Blended learning suitability<br>Use of assessment<br>Discussion forum | The collective factors (TP, CP, SP)/ Educational theory support (workshops, PDP, instructional designer support | The use of innovative technology<br>Different approaches to increase engagement (e.g. lived case study) |
| | | Exploration | Exchange information via groups | | ○ | | | | | |
| | | Integration | Scaffolding of (theory «practical) knowledge | | ○ | | | | | |
| | | Resolution | Applying learnt knowledge (presentations) | | | | | | | |
| **Social Presence** | 4.14 (.62) | Affective (personal) expression | Safe space/person-centred communication | | **Engagement**<br>Engagement as a challenge or opportunity<br>Use of online technology to measure engagement<br>Use of lived case study to improve engagement<br>**Creating a learning community**<br>Nature of courses<br>Sense of belonging<br>Number of students | Engagement difficulties<br>Isolation<br>Nature of the course (clinical vs non-clinical) | Staff-student ratio | Building learning community<br>Creating sense of belonging | | |
| | | Open communication | The use of discussion forums/web conference room | The use of social media pages without educators | ○ | | | | | |
| | | Group cohesion | The use of Wiki pages and group assignments | | ○ | | | | | |
| **Teaching Presence** | 4.03 (.76) | Design and organisation | Setting curriculum/ content only expert | Not a design expert | **Course design and evaluation**<br>Use and understand the educational theoretical framework<br>Inadequate course evaluation<br>The need for instructional designer (feeling stranded) | Lack of use and understanding of theoretical framework | Inadequate e-learning resources and supports<br>Difficult LMS | Content co-creation | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Content co-creation and delivery**<br>Learning materials development<br>Workload and time<br>**Availability of resources**<br>Inadequate e-learning resource support<br>Large student numbers<br>Difficult learning management system | Intense use of learning outcomes as a framework<br>Inadequate **evaluation** | The need for instructional design support<br>Large student cohort<br>Workload and time | | | |
| | | Facilitating discourse | Facilitator of knowledge and discussion | Underused platforms | | | | | | |
| | | Direct instruction | Instructive learning | | | | | | | |

## 7.2 Metainferences and Quality of Findings

Tashakkori and Teddlie (2008, p. 101) described a metainferences as “an overall conclusion, explanation or understanding developed by integrating the inferences obtained from the qualitative and quantitative strands of a mixed-method study”. The development of the metainferences for this study was a result of the complexity of the research, and allowed the researcher to identify the emerging trends, and to focus on the overlapping constructs to generate an understanding beyond the two phases. Metainferences construct meaning and conclusions of inferences drawn about the results to generate new knowledge by using the participants' data and narratives and the researcher’s interpretations. Fetters et al. (2013) used the term ‘fit’ to describe the coherence of the qualitative and quantitative findings to draw conclusions about the new knowledge of the two sets of data, with four main possibilities: (1) confirmation: both datasets draw the same conclusion; (2) complementary: the data draw different conclusions but non-contradictory stories; (3) expansion: both datasets provide broad and overlapping understandings; (4) discordance: the datasets conflict with each other. In this research, the quantitative and qualitative data produced confirmation and expansion of the understandings arising from the conclusions. Tashakkori and Teddlie (2008) argued that mixed-methods research (MMR) uses the term ‘inference quality’ to describe the validity of the integrated results. Teddlie and Tashakkori (2009) emphasised within-design consistency aimed at preserving the cohesiveness and logical flow of the study strands as one aspect of inference quality in sequential mixed-methods design. Inference quality is used to describe both a process and an outcome. The process of inference quality is made up of the actions that the research follows to establish the meaning of a large amount of collected information (the descriptive statistics, the thematic analysis, and the joint display). The outcome inference is the conclusion made on the basis of the interpretation of the acquired data (the metainferences). In the current study, the morphosis of the metainferences grew and was revealed after the researcher had thoroughly examined Phase I and Phase II data and results repeatedly.

The findings chapters confirmed the quantitative data and expanded on this with the qualitative data, finding that the CoI framework was applicable and that its core concepts were implicitly embedded in the current design practices of the nursing courses. The researcher believes that the explicit

adoption of the CoI framework can transform nursing higher education and the transition of novice educators to online/blended education. These two metainferences, and their sub-categories, will be discussed in the next section.

### 7.2.1 CoI transforming nursing higher education

COVID-19 has had a major impact on higher education in 2020-21. Educators across the globe have rushed to shift their courses online (Crawford et al., 2020). As a result, nursing educators' roles have changed to become more challenging, as the replication of what they normally do in the classroom has proven to be inadequate online (teachonline.ca, 2020). The lack of knowledge of a proper online educational framework to guide educators' transition from face-to-face to the online/blended mode was evident from the findings of this study.

Nursing higher education needed to be transformed even before the COVID-19 pandemic (Benner et al., 2009a). Transformation means "the process of changing completely the character or appearance of something to improve it" (Cambridge dictionary, accessed May 2021). With the effects of the pandemic, there is a need for higher education transformation that improves nursing educators' teaching skills and student collaboration and engagement to produce better educational outcomes in online and blended learning. While interaction and engagement are the essences of building a learning community, this research offers a unique insight into how the CoI framework can transform nursing higher education and nursing educators into their new role in online/blended courses.

This study was conducted prior to the COVID-19 pandemic, but the quick shift to online courses increased the need for a validated theoretical framework that suited the online environment. The CoI framework has the characteristics, attributes and rigour that are needed to assist with the transformation and transition of nursing educators and education. The previous findings chapters represented the opinions and the voice of nursing academics regarding their current practices, and the barriers and facilitators they faced in the design, delivery, and evaluation of online/blended courses. Consequently, addressing these issues through the lens of the CoI framework to guide the transformation of nursing courses will improve nursing education and nurses' abilities to deal with

the complex health care system. The metainferences showed that the CoI framework is capable of transforming nursing higher education by transforming pedagogy to design online courses, ensuring the centrality of teaching presence, improving course evaluation and workload efficiency, and transforming engagement, social presence, discussion forums, blended learning, and the use of technology, as shown in Figure 19. Cognitive presence categories are vital in transforming any education. However, since CP is fully embedded in the current design practices (i.e. the use of problem/case based learning), it will not be discussed in this section as a transforming factor of CoI.

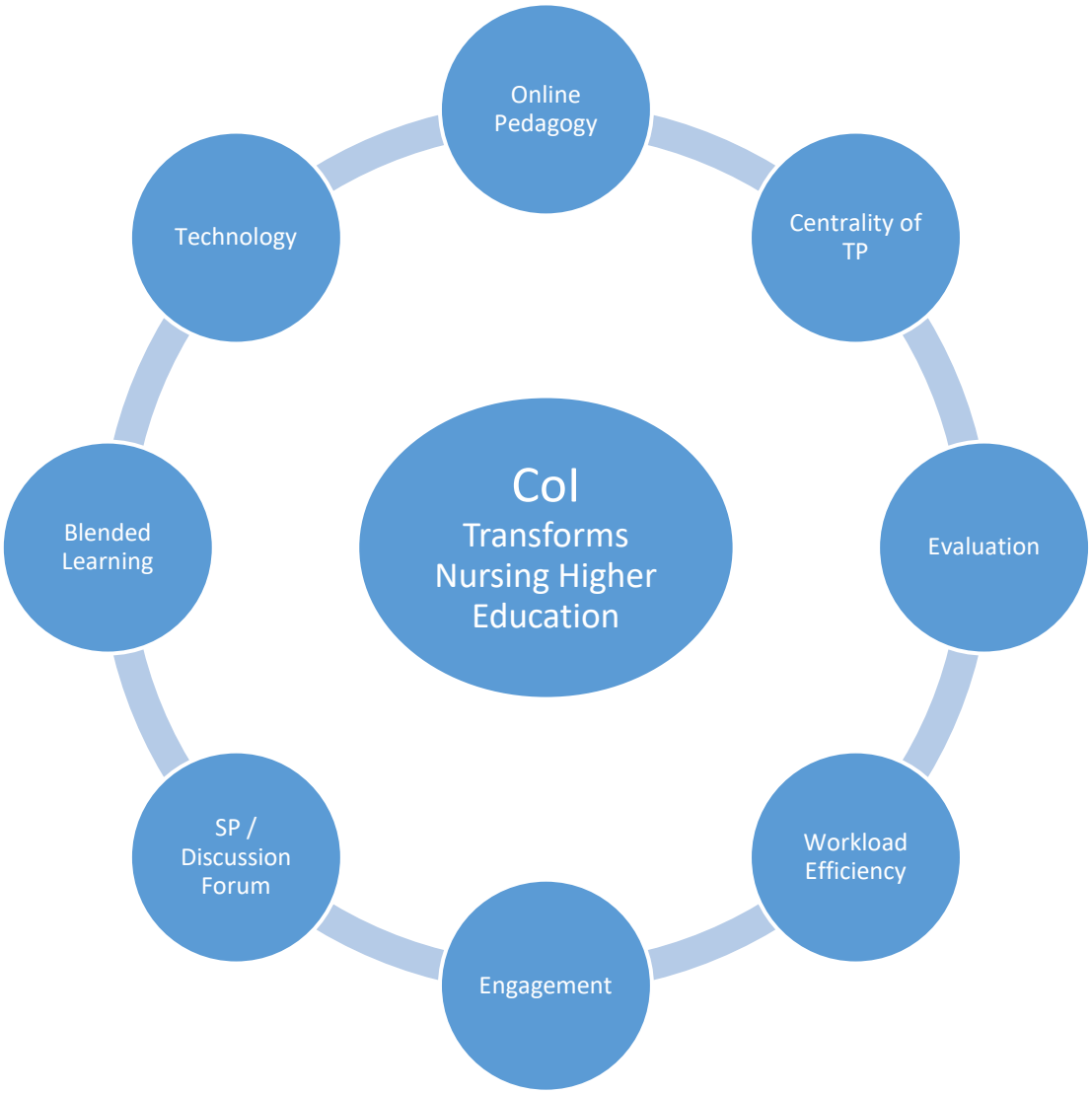


**Figure 19: CoI Transforming the online nursing education (Original work of this thesis)**

#### *7.2.1.1 Transforming Pedagogy*

The use of learning theories is the key to the transformation of nursing higher education (Candela, 2016). The qualitative data in this mixed-methods study design revealed a lack of use and

understanding of a theoretical framework to guide educational practice. The CoI theoretical framework transforms nursing higher education to match the rapid shift of technology in the 21st century. Nursing educators play a central role in this shift because of their involvement in pedagogy (design, delivery, and evaluation of courses). In Phase II (Chapter Six) of this study, the nursing educators were aware of the importance of using a pedagogically sound theoretical framework to design their courses. However, not all used an explicit theoretical framework, which showed a gap between the educators' perceptions and their actual practice. The CoI framework as a social constructivist approach focuses on building a community of learners who interact and engage in reaching a better understanding of adult learning. These attributes of the CoI framework overlap with the nursing profession, which focuses on interaction and engagement with patients and other health practitioners in the work environment. The transformation of nursing education required a framework that could effectively serve the online /blended medium, such as the CoI framework. The key in this transformation was the explicit use of the CoI framework presences.

#### *7.2.1.2 Transformation via Social Presence*

The transformation of online/blended nursing education was negatively affected by the lack of social presence in the courses, as reported in Chapter Six. The interview analysis found that the social presence categories were embedded at different levels among the nursing academics. They voiced that there were barriers to achieving social presence, such as the physical absence of the learners, the absence of educators from the educational groups, and the feeling of isolation in the online mode. The ‘open communication’ category in the social presence was lacking, as evidenced by the under-use of the formal discussion forums and the use of social media pages without the educators’ involvement. In this study, the essence of social presence is built around intellectual discourse and recognising, complimenting, asking, and responding to questions in the discussion forum space. The literature confirms this in relation to the effect of social presence on the quality of cognitive presence (Lee, 2014), and the influence on students’ learning experiences, motivations, and participation (Richardson et al., 2017).

One of the central concepts of the CoI framework is that the educational communities have a formal leader (the educator or facilitator) who develops, monitors, and manages the community (Garrison,

2013). The recent literature shows that the use of social media, with the educator's involvement and as part of the course design, could have positive outcomes in supporting and complementing the cognitive, social, and teaching presences (Jones et al., 2016; Popescu & Badea, 2020). For example, Popescu and Badea (2020) compared the use of blogs and Twitter posts on the components of the CoI presences. The study used content analysis of the posts and found that while blogs were shown to be content space with a cognitive presence dominance, Twitter was shown to be social space with a social presence dominance. This study did not consider the teachers' posts; hence, the effect of teaching presence was not represented despite the presence of the teacher in both communication groups.

The achievement of full social presence in nursing courses needed more attention to be paid to the 'open communication' category and in feeling comfortable and safe when using the discussion tools. A focus on building educational groups, better use of discussion forums, and educators' involvement in social media pages facilitate the adoption of social presence in nursing courses, and therefore, the transformation of higher education.

Nursing educators should be equipped with the knowledge and understanding to facilitate any theoretical framework to transform nursing education. This means that the transformation starts from the nursing academics applying and understanding the most relevant educational theories to the nursing curriculum. Therefore, this study showed that educators as facilitators, designers (by experience), and evaluators have a central role to play in educational transformation. Also, the CoI framework relied on the teacher's role in designing, facilitating, and organising the content in the teaching presence categories. As will be discussed in the next section, this study confirmed that teaching presence is central to applying the CoI framework to nursing education.

#### *7.2.1.3 Transformation via the centrality of teaching presence*

Teaching presence is the most significant presence that binds the entire CoI theoretical framework together and is the basis of transformation. Teaching presence is organised around three principles—design, facilitation, and direction (Garrison, 2016). Each of these elements supports both the social and cognitive presences. The design has to do with the creation of communication (social

presence) and a plan to establish critical discourse (cognitive presence). Facilitation is about establishing a community (social presence) and inquiry dynamics (cognitive presence). Direction means sustaining respect and responsibility (social presence) and inquiry through resolution (cognitive presence). Just as each sub-factor contributes uniquely to the teaching presence construct, each sub-factor must be thoughtfully considered and intentionally established. The foundational characteristics of teaching presence were highlighted in a study by Hosler and Arend (2012), which found that teaching presence accounted for 47% of the variance in cognitive presence scores.

This study found that using case/problem-based learning in nursing education can help with fully embedding the cognitive presence categories (triggering, exploration, integrating, and resolution), thereby binding the presences together. Students' self-directed problem-solving, collaborative learning skills, and motivation levels are aimed to be developed during the problem-solving process (Martyn et al., 2014). Problem-based learning can promote the development of critical thinking skills, problem-solving abilities, and communication skills. It can also provide opportunities for working in groups, finding and evaluating research materials, and life-long learning. Problem-based learning is a well-established pedagogy which is used extensively in nursing education. Martyn et al. (2014) found in a study that problem-based learning facilitates critical thinking in nursing students. Therefore, this study has confirmed that the use of problem-based learning can assist with the full achievement of the cognitive presence phases in nursing courses. This shows the importance and centrality of the design, facilitation, and direction (teaching presence) of the learning activities to achieve other presences, such as cognitive presence in this example.

Hosler and Arend (2012) suggested that the design and the facilitation of discourse (as part of teaching presence) foster critical thinking (as part of cognitive presence) if the course has clear goals, relevant assignments, direct feedback, and facilitated discussion. The development of critical thinking as a skill is enhanced by successful training and sound design by the educator (Kanbay et al., 2017). The participants in this study related the success of cognitive presence cycles to the educator's role in organising, facilitating, engaging, and giving constructive feedback. Therefore, the

role of the educator in teaching presence allowed for the complete embedding of cognitive presence in the nursing courses.

On the other hand, social presence was found to be only partially embedded while lacking the 'open communication' category when the students used social media pages to form educational groups without the involvement of the educators. This was supported by Mills' et al's. (2016) findings on the high levels of satisfaction among nursing students in the cognitive and teaching presences in research subjects using the CoI as a framework. The same study showed that the students were varied in their opinions about the creation of social presence. Therefore, the researcher argues that the attendance of the educators (i.e. teaching presence) in the educational groups was vital to enabling the groups to reach the phases of cognitive presence while facilitating the environment for learners to achieve their educational goals. The qualitative data in this study demonstrated that the educators' involvement in the discussion forums enhanced the students' interactions and focused on the goal of the discussions, which enhanced cognitive presence.

The findings of this study have shown that current practice – despite the limited knowledge and awareness of the CoI – has similarities with the core concepts of the framework. Most importantly, awareness about the role of building a community of learners reduces feelings of isolation and increases interaction, engagement, and, therefore, learners' higher order thinking (cognitive presence). Interaction and discourse play a key role in higher-order learning, but not without structure (design) and leadership (facilitation and direction).

The aforementioned examples reinforce the importance of teaching presence, thereby providing evidence about how the interaction between the presences is vital to achieving higher-order thinking and learning. The CoI framework offers theoretical elements essential for successful knowledge construction in collaborative online environments. But the CoI presences were convoluted and intersected – an absence of the components in one category led to absence in another. As shown in Chapter Five, the study participants were aware that the CoI presences were interdependent. For example, three categories of social presence [sense of identity and belonging, online web-based as a medium, and feeling safe] were deemed applicable if educators designed and facilitated the

activities [teaching presence] to serve these categories. These findings of the study are supported by the meta-analysis by Richardson et al. (2017), which found a positive correlation between social presence and student outcomes [perceived learning and satisfaction]. They also found that the establishment of social presence was positively affected by the length of the course and the discipline area. Another study involved social presence indicators being used as predictors of students' academic performance (Joksimović et al., 2015). The implications of this were to identify troubled students during the course and to address learning issues to prevent drop-out and increase retention in the course.

This study confirmed the interdependence of the three presences used in formative assessment and discussion forums to trigger the thinking process individually and in small groups. These findings were reinforced by Almasi and Zhu (2020) in a mixed-methods study, who found that, in the quantitative phase, the students experienced high cognitive presence in blended learning courses followed by qualitative data from the same sample to show that cognitive presence occurred via interaction and intellectual discourse in groups and presentations. They concluded that this was due to the teacher's involvement (teaching presence) in the discussion forums, and in providing the students with questions that stimulated their thinking, thus improving their academic performance and satisfaction. This result leads us to infer that stronger teaching presence improves online learner satisfaction, and therefore, performance, as Kucuk and Richardson (2019) concluded in their study.

From the above findings, it can be seen that nursing academics' teaching presence play a central role in achieving the other two presences. As the central part of teaching presence, the role of the academic is to design, deliver, facilitate, and evaluate the course. Also, the achievement of the cognitive presence categories depends on the effective design and delivery of the learning activities, while facilitating the presence of each learner as a 'real' person in a safe environment (social presence). This is not to suggest that educators need to achieve all of this individually, but instead, to confirm that they play a major role in setting the climate to ensure that all of the presences are interacting according to the CoI framework to produce an educational experience. This result is confirmed through the original CoI framework on describing teaching presence as the binding element of the framework (Garrison, 2017), as the definition of teaching presence is: "Teaching

Presence is the design, facilitation and direction of cognitive and social processes to realize personally meaningful and educationally worthwhile learning outcomes" (Anderson et al., 2001, p. 5). This has been confirmed by Law et al. (2019), who found that teaching presence positively influences cognitive and social presence in the blended learning environment.

The centrality of teaching presence is in contrast to Armellini and De Stefani (2015), who suggested adjusting the original CoI framework by claiming that social presence is the central and larger element that produces the 'learning experience'. They concluded that the new framework has three presences (social presence, cognitive presence, and teaching presence), but that social presence will be central and more prominent in changing the categories. The adjusted model does not show how they developed and categorised the new constructs. The adjusted areas of the CoI framework by Armellini and De Stefani (2015) contradicted the essence of the social constructivist approach. For example, they suggested a new category known as 'self-study', which undermines the essence of the theoretical premise of a collaborative community of learners and violates the fundamental assumption of the CoI framework. Similarly, Shea and Bidjerano (2012) suggested adding a fourth presence to the CoI framework called learning presence. The claim was that 'learning presence' reflects self-regulation behaviours that enhance the CoI framework. Garrison and Akyol (2013, p. 85) argued that the proposed fourth presence with its focus on self-regulation contradicted the concept of co-regulation, collaboration, and community that the CoI framework is built around, suggesting that: "In the CoI framework, learners do not learn in isolation and participants are not solely responsible for their own learning".

In summary, the centrality of teaching presence in nursing education means that nursing academics and course designers can transform nursing higher education by achieving successful teaching presence categories in their courses; for example, through a focus on problem-based learning to facilitate the progress of learners from lower-order to higher levels of thinking, or increasing educators' social presence by reclaiming discussion forums to create a community of learners that feels safe, welcome, and engaging. These findings are crucial as they indicate that the CoI framework may be beneficial for strengthening the design and evaluation of online/blended nursing

education if used explicitly, and more specifically, if the focus shifts to creating pedagogically skilful nursing educators to achieve the three presences in CoI-designed nursing courses.

#### *7.2.1.4 Transformation of course evaluation*

The transformation of course evaluation needs a solid foundation such as a valid evaluation tool rather than student evaluations of teaching, as voiced in this study. The development and validation of an evaluation tool by Arbaugh et al. (2008) have revolutionised the framework and facilitated its use in the evaluation of courses in the online research arena. The tool measures teaching, cognitive, and social presences, and consists of 34 items that each reflect a category and an element. The ability of the instrument to provide reliable and valid results was tested in the establishing paper and the follow-up study by Swan et al. (2008) using factor analysis, and confirmed by several studies thereafter as described in a systematic review by Stenbom (2018). According to Garrison (2017), the survey instrument has made "a significant enhancement and proliferation of CoI research through more efficient data analysis and by making possible large-scale studies across institutions, disciplines, demographic groups and technologies" (p. 165).

Furthermore, Stenbom's (2018, p. 27) systematic review determined that "the CoI survey is a widely accepted instrument for revealing participants' perceptions of a learning experience [and] … it is clear that the CoI survey provide[d] a reliable and valid measure of cognitive, social, and teaching presence as outlined in the CoI framework". Stenbom (2018) also concluded that as the development of the CoI framework reflected predictions of student perceptions, satisfaction, and retention, it thereby reflected the views of the learners. My study offers a unique knowledge of academics' views on the applicability of the CoI framework to online nursing education, which is essential for the transformation of nursing higher education. Academics are responsible for preparing, designing, and evaluating courses, and their opinions, as assessed through the CoI evaluation survey, are crucial to improving the quality of nursing higher education.

#### *7.2.1.5 Workload efficiency*

All the nursing academic participants from this study came to a consensus regarding high workloads, the large student cohorts, and the lack of resources which have a negative impact on the

transformation of nursing higher education, and most likely lead to occupational stress and burnout among nursing academics. These findings support the existing literature on workload.

Singh et al. (2020) postulated that workload issues, resources and support, and adapting to change are among the factors that lead to stress and burnout among nursing academics. This might increase the likelihood of early retirement among nursing academics, decreasing the number of graduate nurses that each institution can take in the future (Bittner & Bechtel, 2017). This study and the literature agree that increased workload is the main barrier to adopting online/blended learning (Gregory & Lodge, 2015), stressing the importance of monitoring the workloads of all levels. Greater understanding and addressing of the issues that reduce nursing educators' workloads will assist with transforming nursing education. For example, in this study, the participants identified the need for an instructional designer who can lead the pedagogical design of the courses, as they considered themselves as content experts rather than pedagogical experts. This would reduce workloads, increase resource availability, and give academics more time to focus on delivering and evaluating their courses. The CoI framework does not offer a direct solution to the workload issue and the lack of resources, but it does enhance the understanding and perceptions of the nursing academics in relation to the important aspects of teaching and learning online, which will help in building a valid design and evaluation courses with a tool to measure the constructs of the framework that will lead to improving and transforming nursing courses. This will reduce workloads and ensure that online education is more effective and of higher quality than the current practices.

#### *7.2.1.6 Transforming engagement*

To understand how the CoI framework can transform 'engagement' in nursing education, we should define the term. One definition of engagement is "the student's psychological investment in an effort directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote" (Martin & Bolliger, 2018, p. 205). Meyer (2014) described engagement as the students' effort to create their own knowledge and develop their cognitive abilities. Cognitive abilities in the social constructivist CoI framework are achieved by interaction within the community. The term 'engagement' is used interchangeably with the term 'interaction' (Martin & Bolliger, 2018).

It is essential to understand the nature of engagement as per the CoI framework. The epistemological assumptions of CoI are built on social constructivism, where knowledge construction occurs via collaboration and intellectual discourse within the educational group. This collaboration does not happen within the educational community without engagement or interaction. All community members, including learners and educator(s), are engaged in building the meaning of the new knowledge where Individual learning cannot be viewed in isolation. Building a community of learners needs collaboration, while collaboration needs interaction and engagement for a better educational experience.

The qualitative data from this study show that facilitating engagement in the community could be an opportunity to use online/blended learning to its full extent. Web 2.0 tools and technology have improved recently and opened the door to facilitating interaction and increasing engagement. However, educators are faced with challenges to engage students in nursing courses, especially in clinical subjects. The use of the CoI framework in nursing education will enhance learner engagement and satisfaction. Recently, the use of the framework in nursing education has confirmed the results of this research. For example, Claman (2015) used the CoI framework to guide his research on the effects of web-based synchronous instruction on student engagement compared to the traditional asynchronous learning method. The results confirmed that the use of the synchronous web-based learning platform increased perceived social presence, and therefore, student engagement.

Chan et al. (2021) described this in studying the level of engagement and its relationship with students' perceived satisfaction in an online clinical course using the CoI framework. The results suggested that the use of the CoI framework increased perceived satisfaction, and therefore predicted an increase in engagement among nursing students. Another study by Archer-Kuhn et al. (2020, p. 187) found that student engagement in inquiry-based learning contributed to an increase in "reflective and integrative learning and increase in higher-order learning". This means engagement will facilitate the phases of cognitive presence.

Moore's (1989) taxonomy viewed interaction as a linear rocess that is divided into three types: learner-learner interaction, learner-instructor interaction, and learner-content interaction. In contrast to this linear view, the CoI framework perceives interaction as an interdependent action among community members, with each presence overlapping with, and depending on, the other two presences. In comparison, Laurillard (2013) viewed the learner-instructor interaction in her conversational framework as the heart of the learning process where the instructor and learner develop meaning and understanding through interaction, dialogue, and feedback. This view supports the argument of this thesis about the centrality of teaching presence.

Research has shown that the three presences in the CoI framework overlap and are interdependent in producing a worthwhile educational experience built on collaboration and interaction (Zhang & Cui, 2018). As a profession, nursing is social and built on the interaction between the nurse on one side and the clients and other health professions on the other. The transformation of nursing education should ensure a pedagogy that creates a collaborative, interactive, and social nurse who continues learning as long as they engage and interact with others.

#### *7.2.1.7 Transforming blended learning*

Nursing is a social and human profession, but clinical skills and procedures are difficult to explain, teach, and assess in a fully online environment. Therefore, the findings of this research are congruent with the literature that the face-to-face component of blended learning is better used to teach clinical and psychological skills to students (Sáiz-Manzanares et al., 2020).

In combination with the CoI framework, blended learning advances the transformation of nursing education. The participants in this study and the literature confirmed the suitability of blended learning to nursing education because of the wide variety of learning styles that assist students to choose their own way of learning. In addition, it has been demonstrated that the CoI framework can assist in the development of an effective blended learning process and, therefore, collaborative learning approaches (Zhang, 2020).

The flexibility of blended learning was repeatedly mentioned in the data of this study as one of the main factors in facilitating cognitive presence. Similar to the findings of this study, Ali et al. (2013) reported that blended learning enhanced students' cognitive skills.

In this study, the participants rated blended learning as the most suitable learning mode for education in the quantitative phase. Similar to the findings of this thesis, Bloomfield and Jones (2013) found that nursing students also perceived blended learning as their preferred teaching mode to support the psychomotor techniques for acquiring clinical skills. This was confirmed by the qualitative results of this thesis, where the participants expressed their preference to teach in a blended mode, especially for the clinical subjects. According to the participants of this thesis, and as shown in the previous literature, teaching clinical skills requires face-to-face instruction, while the 'theory part' of the course can be self-driven via an online or blended learning component (Al-Shorbaji et al., 2015).

The multiple modes of communication and the variety of learning styles in blended learning designs offer advantages over face-to-face or purely online modes. Communication is considered to be the catalyst for learning in the social constructivist approach. The great epistemological advantage of social constructivism is that meaning is precipitated and confirmed through discourse and negotiation. In this regard, there is an expectation (consistent with learning in an educational context) that learning is a process embedded in critical discourse that provides an inherent opportunity to challenge and test understanding that is better facilitated in the blended mode.

Tiedt et al. (2021) measured the effect of online course duration (8 weeks vs. 16 weeks) on student engagement, student perceptions of the learning experience, and self-reported learning behaviours using the CoI framework survey. The findings revealed that the elements of the CoI framework became established irrespective of online course duration. Cognitive presence was fully established with differences in the categories of teaching presence and social presence. This result is congruent with the outcome of the current PhD thesis, that cognitive presence is applicable and is embedded in current practices from the nursing educators' points of view, while teaching presence and social presence have some divergence and need attention. The longer the duration of the course, the better the establishment of rapport, and increased comfort and engagement with peer interactions.

Consequently, a blended learning approach solves these divergent issues of establishing rapport and building a learning community through the social and teaching presence in nursing courses.

#### *7.2.1.8 Transformation through technology*

The use of instructional technologies and LMS tools (Web 2.0) assists with increasing engagement, and therefore, improving student outcomes by giving a precise analysis of interactions, frequency of use, and duration (Sáiz-Manzanares et al., 2020). For example, some participants in this study used LMS log files to trace learner interactions and engagement, and to identify students who did not interact in discussion forums. Unfortunately, in this study, most of the educators used the log file in the LMS to provide evidence of low engagement and interaction after the completion of the course to justify low or fail marks. The other participants used it to identify disengaged students in order to prompt them with an email to encourage them to participate and interact more. The question that this thesis raise is whether the student who logs in and clicks on the links and spends some time logged in can be considered to be engaged. The research has shown that there is a range of dimensions to engagement in an online course (Redmond et al., 2018). For example, behavioural engagement refers to the manipulation of the interface of the screen by clicking, navigating, and scrolling, whereas cognitive engagement involves deep thinking and reflection on issues or activities. These two dimensions of engagement are not necessarily associated. The student could be clicking and spending time on the LMS screen, but not be deeply (cognitively) engaged. For this reason, Redmond et al. (2018) argue that the design of an online course must include the different dimensions of engagement to promote a deeper level of the overall engagement.

The new communication technologies (Web 2.0) (such as wikis, blogs, interactive lectures, discussion forums etc.) driven by educationally valued ideas of teaching and learning (i.e. a collaborative constructivist approach such as the CoI framework) will potentially transform higher education (Garrison & Akyol, 2009). In nursing education, the successful use of instructional technology (Web 2.0) to create a CoI will strengthen learners' capacity to construct meaning, and to collaboratively assess comprehension through critical discourse. Please see the original work of this thesis in Figure 20 below.

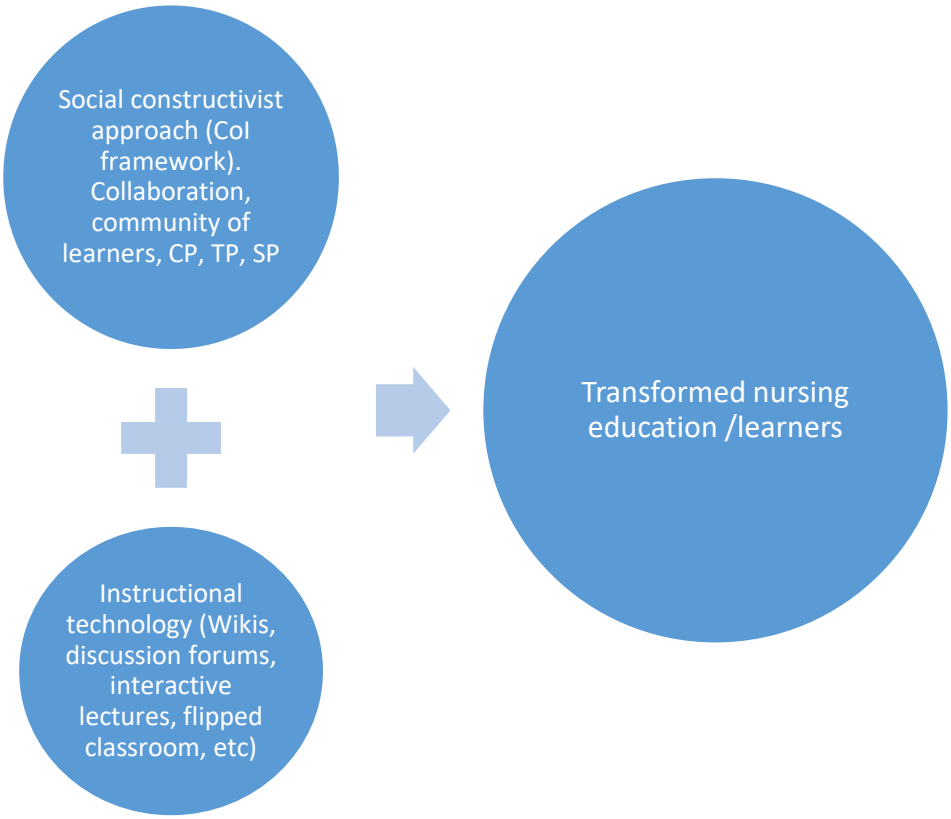


**Figure 20: Nursing education transformation using CoI and Web 2.0 technology**

In the CoI framework, technology is viewed as a medium through which to deliver content while balancing the teacher, student, and content roles to create a thriving learning environment. Yet, other recently proposed online learning theories, such as Siemens (2005) connectivism, viewed learning as a networking event shaped by technology and socialisation. The founder of connectivism critiqued all previous learning theories (behaviourism, constructivism, and cognitivism), describing them as unsuitable for the digital age, despite building the premises of the newly proposed theory on previous learning theories.

One of connectivism's principles states that "Learning may reside in non-human appliances" (Siemens, 2005, p. 5). Furthermore, the knowledge occurs internally and is distributed to the network that consists of other learners, machines, websites, and databases. This was one of the significant criticisms of connectivism because it lacks an explanation (Goldie, 2016). Connectivism lacks empirical testing to support its claims. The understanding of the transformation of nursing higher education from the perspective of collaborative social constructivism (the CoI) is more applicable

than the principles of connectivism because of the human, social, and collaborative nature of the nursing profession.

### 7.2.2 Transformation towards mastery using CoI (a new transformation and transition model)

The metainferences arising from the combined data of this mixed-methods study showed that the CoI framework, with the support of the transition theory of Meleis et al. (2000), creates a transitional pathway for novice nursing educators. The transitional pathway specifically applies the CoI framework presences (teaching presence, social presence, cognitive presence) and personal and organisational conditions to assist novice educators to reach role mastery as an outcome indicator of their transition journey. In Chapter Six, the data concluded that novice educators go through transition processes that need to be explored.

Several models included the transition process into the new role, such as the organisational socialisation model by Bauer et al. (2007). This model refers to the process by which newcomers make the transition from being organisational outsiders to insiders. It is a process involving newcomers and organisational adjustments and 'socialization' for the smooth transition into their new role(s) (Bauer et al., 2007). Bauer et al. (2007) proposed that the newcomers and the organisation uses three key indicators (role clarity, self-efficacy, and social acceptance) to adjust to the new role, with outcome indicators reflecting on performance, job satisfaction, organisational commitment, intention to remain, and reduction in turnover. For example, the more role clarity, self-efficacy, and social acceptance between the organisation and the newcomer, the better the performance, job satisfaction, intention to remain, greater organisational commitment, and lower turnover rate. In the proposed transitional pathway in this thesis, the CoI framework is used (as an online educational theory) to identify the factors that facilitate or hinder the transition into the new role by using Meleis's transition theory. This transitional pathway addresses the transition of newcomers while exploring the needs of nursing educators to apply online educational theory that assists them in designing and evaluating nursing courses.

This research found that novice educators struggled to define their roles, especially in the online/blended environment. Most of the educators come from clinical backgrounds (i.e. a hospital,

community, clinics or research) with a wealth of experience in clinical nursing knowledge in the face-to-face teaching mode. However, the journey to becoming a nursing higher educator encounters many challenges. Meleis's original transition theory (Meleis et al., 2000) leads to an understanding of the transition of nurses and patients in healthcare settings. Our findings have added insight into a specific type of situational transition from clinical nursing to novice educator in higher education using CoI framework presences and categories in online/blended learning.

Meleis (2010, p. 11) defined the transition as "a passage from one relatively stable state to another fairly stable state, and it is a process triggered by a change". This study found that the identity and roles of academics were unclear; therefore, the less experienced the nursing educators were, the more role ambiguity they felt. The CoI framework can assist with an understanding of the stages, milestones, and turning points in reaching terminal outcomes or a healthy transition. This alignment between Meleis's transition theory and the CoI framework has not previously been studied.

The novice educators viewed themselves as content experts, but they lacked the formal knowledge of the educational theoretical framework to design courses, and so they did not consider themselves to be course designers. The qualitative data showed that changing roles to becoming a design expert caused role ambiguity among educators, particularly the novices. One of the interview questions in this study was: *"What do you see your role as a teacher [or designer] in an online/blended course?"* The question aimed to identify the views of the nursing educators about their roles after they became educators, especially in the online/blended mode. It was evident from the answers that some of their roles of being a facilitator, moderator, assessor, or content expert, were clear. However, the academics had some role ambiguity when it came to course design and evaluation. Some of the participants did not describe themselves as pedagogical designers because they lacked an understanding of the educational framework and the proper evaluation processes of the courses. This view of their role led them to 'feel stranded' without adequate support from their workplace. According to Meleis (2010), role transition necessitates the person (in this study, the novice nursing educator) to adapt new knowledge (pedagogy), adjust their performance, and change the definition of him/herself (new role) in the new social context (the university teaching setting). This adaptation of new knowledge in the case of transitioning to online/blended courses demands applied knowledge

of educational theories, as described in the previous section of this chapter. Looking at the transition from the viewpoint of the CoI framework to identify the challenges and facilitators, allows novice educators to achieve a healthy transition while specifically identifying the design and evaluation needs through the lens of a suitable educational learning theory that is built on social constructivist theory (i.e. the CoI framework).

As the original work of this thesis, the role transition of Australian nursing academics is summarised in Figure 21. In brief, Meleis's transition theory described the transition stages. When novice educator first commences their new role, they suffer from role insufficiency. Role insufficiency represents the lack of skills and knowledge and the challenges that novice educator faces when they initially come to the role or when they are initially asked to teach online. Role supplementation is the measurement, means, and adaptation that helps the novice educator overcome the obstacles. A focus on the transition of novice educators – through the CoI framework lens – provides a scaffold that acknowledges the universal aspects of the educator's role in higher education, enhances novice educators' abilities in supporting emerging identities and life patterns, supports their concerns about the new system, and challenges them to foster corrective understanding of positive experiences and healthy transition to their new role. The transitional framework for novice educators using the CoI lens stimulates theoretical intelligence and a clear intervention model, and assists with researching the issue. Such a framework will inspire novice educators to describe what they need in a more coherent and systematic way. Using the core principles of the CoI framework to understand the situational transition of novice educators, it is also necessary to understand the personal and organisational conditions that may facilitate or hinder transition outcomes. These conditions are not necessarily isolated. More accurately, they are the interconnected conditions of a convoluted process.

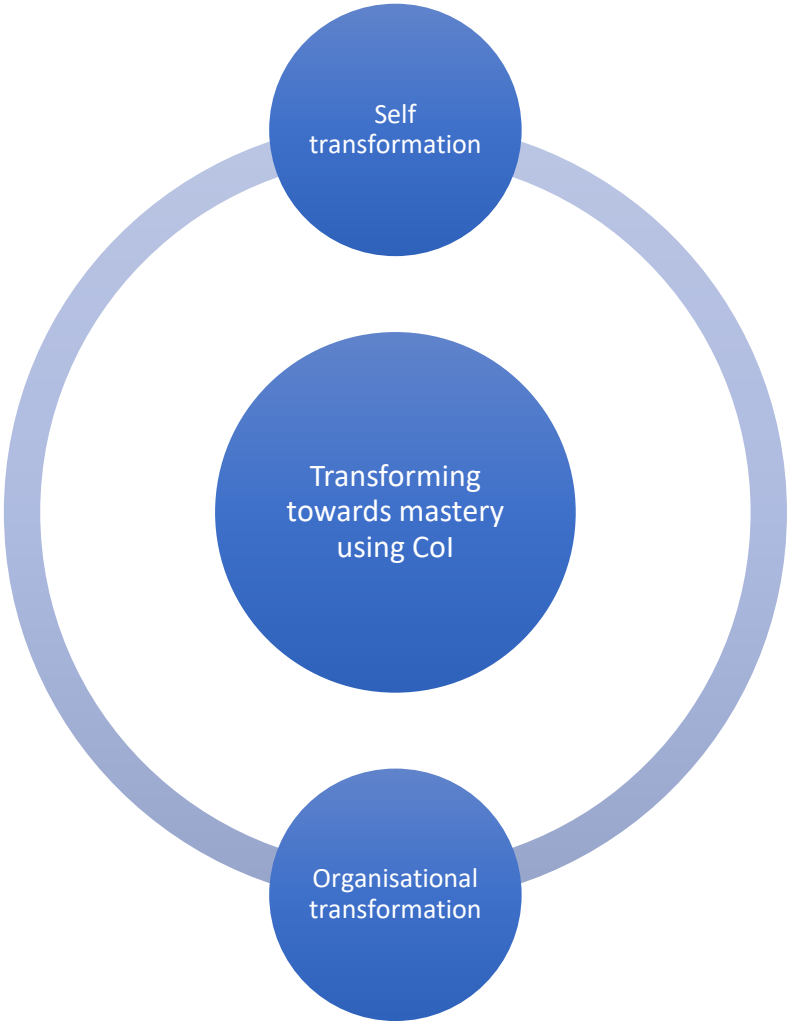


**Figure 21*:* Transformation towards mastery using CoI**

### *7.2.2.1 Self-transformation towards mastery (personal conditions)*

As a result of this thesis, Figure 22 below explains the factors that facilitate or hinder the transition of novice educators into their new roles. The educators' role transition from being a novice to mastery in design and evaluation of online courses involves personal conditions that impinge upon reaching mastery. If the personal conditions prevent the adoption of the CoI framework, they can be described as role insufficiencies, but if they facilitate adoption, they can be considered as role supplementation. For example, the personal factors that prevent novice educators from a healthy transition include 'lack of use and understanding of the educational theoretical framework' described under teaching presence. Teaching presence includes the category of 'design and facilitation' as part of the educator's role. Furthermore, these are personal because the educators are responsible for designing and evaluating their courses. Other personal conditions that contributed to role insufficiency were:

- engagement difficulties and isolation in the online environment
- the nature of the course (clinical vs non-clinical)
- the lower levels of motivation in the online environment

These conditions can work as factors in delaying the healthy transition from the personal level if they are not dealt with.

On the other side, 'role supplementation' to neutralise the effects of role insufficiencies, through the CoI framework lens, at the personal level were:

- building a learning community
- creating a sense of belonging
- learners' content co-creation
- using diversity in learning styles
- the use of blended learning
- the use of problem/case-based learning in the course

For example, the more knowledge of the educational framework and how to apply it, or of the use of various learning styles, the less role insufficiency the educator will face. This led to the general conclusion that the earlier the role supplementation [more knowledge of educational framework] took place, the lower the probability of role insufficiency and vice versa. Personal conditions can be considered as role supplementation if they facilitate the adoption of the CoI framework. For example, the use of diverse learning styles and building a learning community will facilitate the adoption of CoI, and will therefore offer a healthy transition.

#### *7.2.2.2 Organisational transformation towards mastery*

The alignment between Meleis's transition theory and the CoI framework showed that organisational conditions play a significant role in facilitating or inhibiting healthy transition and adopting the CoI framework into nursing education. For example, inadequate e-learning resources and supports made the transition difficult, and therefore, novice educators felt stranded without proper guidance. This shows how organisational conditions can inhibit the transition into the new role. The nursing

educators described the organisational conditions that facilitated and inhibited their transition to the educator role, including:

- the complicated Learning Management System
- large student numbers in each class
- Increased workload and less allocated time
- the need for an instructional designer
- low staff to student ratio

The factors mentioned above were viewed by the novice educators as role insufficiencies, which prevented their healthy transition into the new role and hindered the adoption of the CoI framework into nursing education. The organisational facilitators included:

- support in adopting the educational theory that fit nursing education (workshops and training)
- peer support
- a professional development program
- advice and support from an instructional designer

Nursing educators' roles and responsibilities are increasing while facilitating the personal and organizational conditions will overcome the inhibitor factors is vital for healthy transition and will produce a better educational experience for the learners and the educators. These research findings add to the literature of course design and of role transition to better understand these two concepts. In this study, role supplementation could become the method for the attainment of role mastery. For example, the use of an educational theoretical framework or instructional design will lead to better use of technology and increase engagement skills. Role mastery is an outcome that will be achieved if novice educators use innovative learning technologies and different approaches to increase engagement in the online environment.

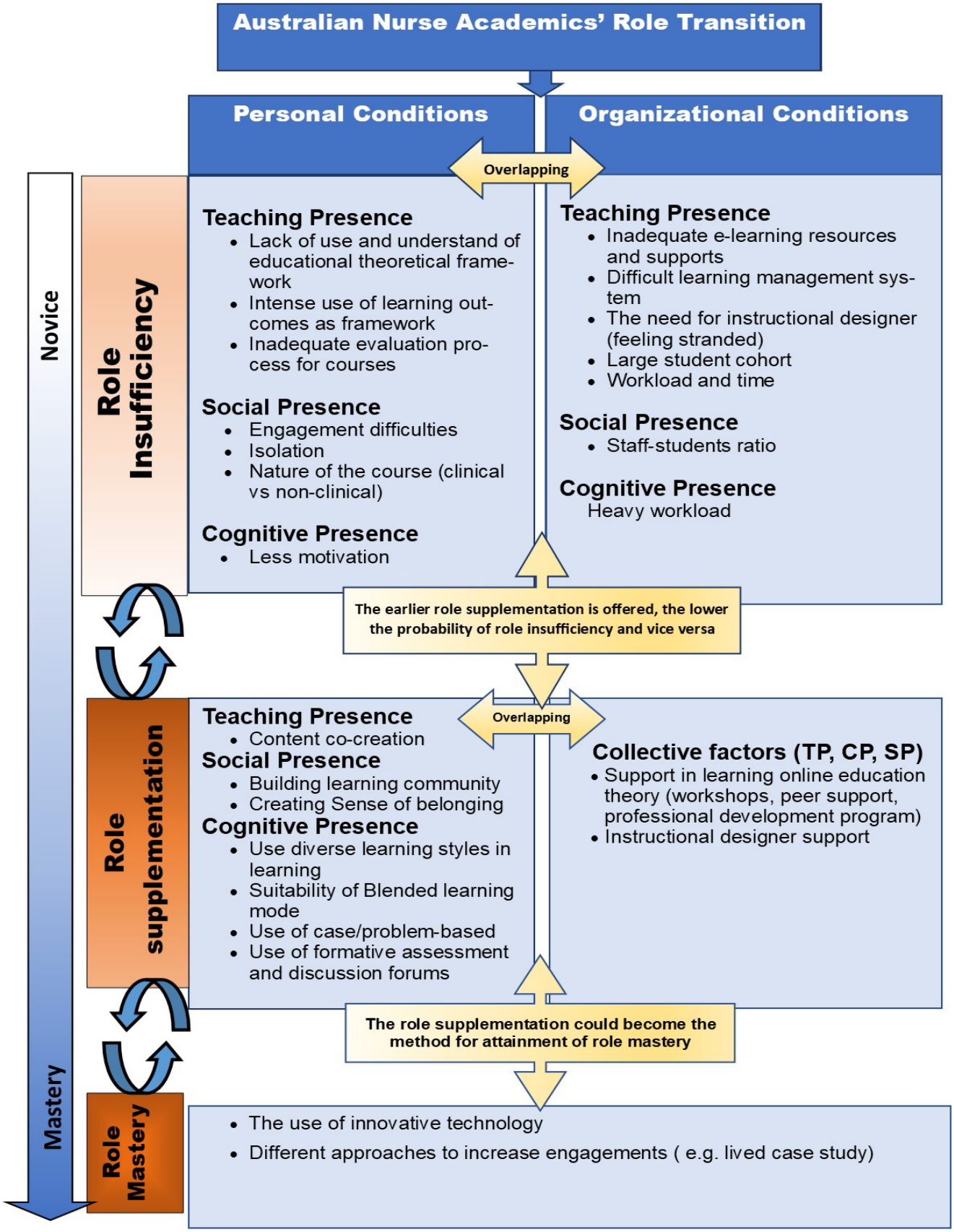


**Figure 22: Australian nursing educators' role transition – a new Transformation and Transition model**

## 7.3 Chapter Summary

The findings were presented in Chapters Five and Six, including a discussion of the issues that arose, while this chapter has presented the metainferences that explain the complexity of the transformation of online/blended nursing courses in higher education. The CoI framework can transform online/blended nursing education and facilitate a healthy transition to higher education for novice nursing educators, including the shift to online education.

The next and final chapter will briefly answer the research questions, discuss the conclusions, provide recommendations including a direction for future research, look at the contributions of this research to theory and practice, and discuss the limitations of the thesis.

# CHAPTER EIGHT: CONCLUSIONS, RECOMMENDATIONS, AND LIMITATIONS

The final chapter briefly answers the research questions, discusses the recommendations arising from the study for nursing academics and education institutions, and demonstrates the contribution of the study to the literature. The final sections discuss the limitations of the study and the future research directions.

This research aimed to investigate the applicability of the CoI framework to online/blended nursing education and to discover the relationship between current course design practices and the CoI framework. Before this research, the level of knowledge and familiarity of nursing educators using a theoretical framework in the design and evaluation of online/blended courses were not fully understood. Therefore, there was a need to research the applicability and useability of the CoI framework, and the barriers and facilitators to adopting the framework to nursing education. The core concepts of the CoI framework and coding templates were used as a lens to analyse the quantitative and qualitative data. The framework can be used in research and practice in online/blended learning environments. This study has provided an overview of the applicability of the CoI framework to nursing higher education, while explaining the implicit factors that assist in adopting the framework to create a (learning) community that assists learners to have a worthwhile educational experience. This chapter revisits and answers the research questions according to the research design, methods, and theoretical framework used. An overview of recommendations to improve online education and evaluation at the higher education level will then be presented, followed by a discussion of the limitations of the study and suggestions for future research.

## 8.1 Research Questions Revisited

This explanatory mixed-methods research study aimed to explore the knowledge of Australian nursing educators about the CoI framework, while inviting their opinions on the applicability of the three core concepts of CoI to online/blended nursing education. It also explored how the CoI framework could promote better online topic design and implementation to improve students' learning. Five research questions were developed. Phase I (quantitative) data was collected via an

online survey of nursing educators from a range of Australian universities to measure the applicability of the CoI framework among nursing educators. Phase II (the qualitative phase) explained nursing educators' current online design and evaluation practices, as well as explained the barriers and facilitators to adopting the CoI framework in nursing higher education. The findings were presented and discussed in detail in Chapters Five and Six, while the integration of the quantitative and qualitative phases was discussed in Chapter Seven. The following section briefly revisits the research questions.

### 8.1.1 Phase I questions (Quantitative)

**What are the opinions of nursing educators [academics] on the applicability of the three core concepts of the CoI framework for blended or online nursing education in Australia?**

The applicability of the three CoI framework presences and their categories were rated on a Likert scale, and were found to be applicable to online/blended nursing education. This finding was generated from the nursing academics' opinions on the applicability of the CoI, whereas the majority of studies using the CoI framework evaluation tool asked students to evaluate the course. Likewise, this study, in addition to the literature that surveyed nursing students, complemented each other in answering the applicability of CoI to nursing education. For example, Ong and Quek (2019) surveyed 224 nursing students and found that the overall perceived CoI presences and satisfaction levels were above the average. The two results complement each other in that the CoI framework is applicable to online/blended nursing education.

**What do blended/online nursing educators [academics] in Australian universities know about the CoI framework?**

The participants' knowledge and awareness of the CoI framework, before the survey, were fairly limited, with only 20% of the participants being familiar with the CoI framework before they participated in the survey. Of these, two-thirds had a good knowledge of the framework before the survey, and one-third had a lack of knowledge of the CoI framework.

### 8.1.2 Phase II questions (Qualitative)

**How do nursing educators (academics) use an educational theoretical framework and create a learning community in online/blended courses?**

The findings confirmed Phase I results and demonstrated a lack of knowledge and use of educational theory in nursing education. Instead, the nursing educators used learning outcomes instead of educational theory to design their courses. This deficit led them to rely on generic Student Evaluation of Teaching (SETs) survey results to evaluate their courses instead of using a validated tool built from a theoretical framework. The results also showed that a lack of educational theory use and knowledge affected the educator's role in teaching presence.

**Is there an implicit relationship between the design and the evaluation of blended or online courses and the constructs of CoI?**

The CoI framework was implicitly embedded as revealed in course design and evaluation practices. Cognitive presence was fully embedded due to the use of case/problem-based learning approaches in nursing; however, social presence and teaching presence were only partially embedded. Social presence lacked the 'open communication' category with students who tended to use social media without the involvement of the educators, while teaching presence was lacking in the nursing academics' experience of design and pedagogy.

**What are the factors affecting the adoption of the CoI framework in Australian nursing education?**

The facilitating factors included the use of the blended learning mode which provided a variety of learning styles for the students; the role of the educators in facilitating the discussion forums and thinking and reflection; the use of online technology to measure the engagement and use of innovative engagement techniques such as the lived case study; and content co-creation and delivery and the availability of resources. On the other hand, the barriers that hindered the adoption of the CoI framework were engagement difficulties; the lack of understanding and use of the

theoretical framework; inadequate course evaluation; workload and limited time; large numbers of students; and an overly complex LMS.

### 8.1.3 Integration of the two phases (The Metainferences)

The integration of the two phases produced a set of metainferences that went beyond answering questions specifically related to each phase. This study concludes that the explicit adoption of the CoI framework can transform nursing higher education and enhance the transition of novice educators to online/blended education. The metainferences demonstrated that the CoI framework can transform nursing higher education by transforming pedagogy to design online courses, ensuring the centrality of teaching presence, improving course evaluation, and enhancing workload efficiency, as well as transforming engagement, social presence and the discussion forums, blended learning, and the use of technology.

This research provides a new model of transition for nursing academics into nursing higher education. The model is unique in that it uses the CoI framework lens and Meleis' et al's. (2000) transition theory to identify the barriers and facilitators that affect the transition of novice nurse academics to their new role as online educators.

## 8.2 Contribution to the literature and new knowledge

Despite the extensive use of the CoI framework found in the literature on online/blended education, there is only limited research in nursing higher education. This study explored its applicability in the nursing discipline with important intellectual contributions to the literature. This study is unique in using the CoI framework of Garrison et al. (2000) and the transition theory of Meleis et al. (2000) to draw a transitional pathway for novice online educators and universities to go through a healthy transition while applying the online theoretical framework [see Figure 22].

The focus of much of the previous literature has been on research from North America, while this study evaluated the framework in the relatively new environment of Australian nursing education. Most of the previous literature tested and studied the framework in disciplines such as education, linguistics, and business and finance, whereas this study examined it in the nursing discipline.

Previous studies focused on using the CoI framework evaluation tool, and measuring the CoI presence from the students' point of view. In contrast, this study gave the nursing educators and course designers a voice to explore their opinions regarding the framework's applicability and the barriers they faced in their current practice.

Finally, this study added to the literature by testing a unique approach to using the CoI coding template in a deductive thematic analysis approach to explore the implicit relationships between current practice and the core concepts of the framework, and to explore the barriers and facilitators to adopting the framework within the nursing education context.

### Implications and recommendations for practice

The study provides significant contributions to the field of online/blended course design, delivery, and evaluation using the CoI framework for nursing higher education in Australia. In addition to the contribution to the literature, the findings positively impact the professional practice of nursing educators/academics. The current COVID-19 pandemic highlights that more focus on equipping academics with best practices in designing effective and engaging online courses is warranted. Using the transitional pathway to assist with the rapid shift to fully online courses among novice educators will have a significant impact on applying the theoretical framework while addressing the barriers and facilitators for novice educators. Based on the main findings from this study, several essential recommendations are put forward for education institutions and nursing educators, and therefore, students in online/blended courses will benefit. The recommendations will be outlined firstly for nursing academics, and then for higher education institutions.

### *Nursing academics*

The findings of the study on the centrality of teaching presence highlight the impact of nursing academics' behaviours, attitudes, and design practices in achieving social and cognitive presence in online/blended nursing education. This will have a positive impact on learners' outcomes, and will increase retention rates, the number of students, the amount of income for the university, and will produce safer graduate nurses that better serve the community.

The recommendations to arise from the study are:

**Recommendation 1:** Using the CoI framework as a learning theory and pedagogy to transform the design, delivery, and evaluation of online/blended nursing pedagogies. This recommendation of using the CoI framework needs dedication, persistence, and time.

**Recommendation 2:** Using the findings of this study to provide nursing educators with best practices to improve teaching presence in online/blended courses. The shift from a face-to-face mode of teaching to an online/blended learning environment requires guidance built on a reliable, practical, and validated theoretical framework that improves nursing educators' understanding of teaching presence and the impact it can have on the cognitive and social presence of the learners.

**Recommendation 3:** Making optimal use of discussion forums and the learning community to achieve the social presence categories. In addition, there is a need to focus on the 'open communication' category of social presence through the involvement of educators in discussion forums and on social media pages, if possible, to facilitate intellectual discourse, recognise knowledge gaps, and to ask and respond to questions in the discussion space.

**Recommendation 4:** Nursing educators to facilitate the formation of the learning community to enhance learner engagement and interaction beyond behavioural engagement and interaction to a deeper cognitive engagement that reaches learners through the cognitive presence's phases (triggering, exploration, integration, and resolution).

**Recommendation 5**: Ensuring higher-order thinking to promote good education practice, which should be reflected in the tasks and activities designed by educators to provoke students' thinking and increase their feelings of belonging. Cognitive presence was found to be fully applicable and embedded in nursing education because of problem/case-based learning. This study recommends using problem-based learning to ensure the achievement of cognitive presence with a focus on the support of students through improved social and teaching presence.

**Recommendation 6:** Using Learning Management Systems (LMS) to their full potential to leverage the three presences that will assist in creating the desired learning community. LMSs and advanced technologies can create easy-to-use, easy-to-access, and efficient learning experiences, if used correctly. The nursing educator's role is to prepare the content and go beyond how to present it in an interactive and engaging mode that allows the learners to form a community and increase their feelings of belonging to the study group.

**Recommendation 7:** Using blended learning for nursing education, as it is the most suitable and preferable teaching and learning mode. It is also the most suitable mode to achieve the full applicability of the CoI framework in nursing education. The face-to-face component of blended learning assists in achieving social presence to build rapport and establish interaction among students. Also, blended learning is better for courses with practical (hands-on and clinical skills) topics.

**Recommendation 8:** This study recommends that novice academics identify their role insufficiencies as early as possible to allow for personal and organisational role supplementation to help them achieve a healthy transition and the mastery of online design practices. The role supplementation that is recommended with this research is the building of a learning community, creating a sense of belonging, content co-creation with the learners, using diverse learning styles via blended learning, and using problem-based learning.

### *Higher Education Institutions*

**Recommendation 9:** The university to facilitate and support nursing educators to increase their knowledge and understanding of the theoretical framework by providing training on the design of online/blended courses using the most suitable theoretical framework.

**Recommendation 10:** Increase online learning resources and technical training to equip staff with the required skills to design and evaluate online courses. Nursing educators need training on best practices in using the LMS.

**Recommendations 11:** Nursing academics need the help of an instructional designer to review their design and online activities, and to learn about easy navigation of the course.

**Recommendation 12:** Universities need to offer technological, technical, and LMS support when needed to allow a sense of support to nurse educators and students.

**Recommendation 13:** The main challenge revealed by the participants was the increase in the workload and the reduced allocation time. This had a negative impact on their ability to update the design of, or to evaluate, the course. This study recommends increases in staff numbers to manage course design, delivery, and evaluation.

**Recommendation 14:** This study recommends using a helpful evaluation tool to evaluate the pedagogy and the online activities. The CoI framework provides a valid 34-item self-reported survey to measure the three presences and explore the weaknesses of the course.

**Recommendation 15:** Support of the universities is needed to provide attention to the transition periods of new nurse educators with a focus on the concepts inherent within the theoretical framework by providing training, workshops, peer support, professional development programs, and instructional designer advice and support.

## 8.3 Limitations of the study

This study added to the body of knowledge in relation to the applicability of the CoI framework to online/blended nursing education. The focus was on giving nursing academics a voice to address

their concerns on the critical issue of the use of a theoretical framework in their design and evaluation practices when using the new online medium. The innovation of combining the CoI framework and Meleis et al's (2000) transition theory contributed a model that will assist with the transition of novice academics to online teaching, while directing nursing educators to identify their role insufficiencies and role supplementation to reach role mastery.

There were a number of limitations identified in this study. These limitations were related to the recruitment process, the method used for data collection, the limited size and profile of the sample, and finally, the possibility of the researcher's subjective bias. These limitations were deeply considered as they could have influenced the transferability and dependability of the research findings.

Data collection for Phase I occurred between October and December 2016, while Phase II took place between August and September 2019. This gap between the two sets of data could be seen as a limitation due to the speed of expansion, change, and improvement in online education. However, the collected data in the two phases and the literature confirmed and expanded the highlighted issues and findings from this study, and were deemed to be relevant.

The response rate of Phase I survey was within the average of the response rate of email surveys in the literature (Porter & Whitcomb, 2007). As well, the response rate was deemed to be adequate for the purpose of the descriptive analysis of Phase I. Both phases included only nursing educators but not students. This limited the results to only nursing educators' perceptions of the applicability of CoI. Student involvement in this research would have given a wider understanding of the applicability of CoI to nursing education.

Phase II was qualitative with 11 interviews from three different universities, which could have had an impact on the representativeness of the findings. However, qualitative research is not dependent on the number of participants, but on the subjective interpretation generated from the data. Furthermore, the use of semi-structured interviews produced a large amount of data which added to the depth of the understanding of online/blended course design and evaluation. Also, the mixed explanatory method using a range of data collections strengthened the metainferences and conclusions, and

increased the trustworthiness of the data to enhance the generalisability of the findings. The interviews represented only three Australian universities in a natural setting, which provided only naturalistic generalisations. One final limitation was the potential subjective bias of the researcher in conducting the interviews and analysing the data. This could have had an impact on the research findings and writing of the metainferences. The researcher followed the credibility and trustworthiness standards as much as possible by asking his PhD supervisors to double-check the analysed data to minimise any possible bias.

Like all other research studies, this study has a few limitations. The researcher acknowledges the limitations of the research; nevertheless, they do not diminish the significance of the findings and the metainferences. Some of these limitations can also provide the basis for further potential research.

## 8.4 Future research

To date, there are only a small number of studies within the nursing disciplines that focus on the use, understanding, and application of the CoI framework. This study provides a focused understanding of nursing educators' perceptions of the applicability of the CoI framework and the generation of a new model of transition for nursing academics to use when shifting to online education. Similar future studies could build on the results of this research and include more diversity of participants from nursing student groups to understand their perceptions when designing online/blended courses in the nursing discipline.

Further studies could also draw a sample from more universities to represent most Australian schools/colleges of nursing to increase the generalisability and transferability of the research.

Another concern for future research would be to compare courses designed for the use of the CoI framework and other courses that use different frameworks, focusing on including students and their educational outcomes, performance, and grades. Another future direction could be to compare clinical and non-clinical courses and measure the perceptions of the online course among students and the effects on their critical thinking, or compared to their grades and self-evaluations.

Engagement and how to use the technology to measure behavioural and/or cognitive engagement is another area of interest. Furthermore, one important research topic is to measure the effects of incorporating social media pages or groups such as Facebook, Twitter, or others to form a community of learners and the CoI framework presences to enhance learners' educational outcomes.

## 8.5 CONCLUSION

The data for this study were collected from nursing educators from several Australian universities with experience in online/blended nursing course design and evaluation. The use of an explanatory sequential mixed-methods approach and the strong acceptance of the CoI framework as a theoretical framework for research and practice in the literature warranted generalisability in translating the findings to similar contexts. The study findings led to a number of recommendations and implications for online/blended learning nursing courses in Australia that will have a significant impact on higher education policies and programs. The views of the nursing educators and course designers need to be considered when developing the curriculum. The current decrease in knowledge of theoretical frameworks, technical support, and staff numbers should be considered as significant factors that act as barriers for nursing educators to produce worthwhile courses. Therefore, innovative course design will increase the retention rate of learners, and produce better quality nursing graduates and a safer health system. Current online course design practices in nursing are faced with a lack of engagement, difficulty in forming a community of learners, heavy workloads, lack of theoretical knowledge, and lack of support. The CoI framework will transform the nursing educator’s role in teaching presence to support learning that influences student retention and outcomes in the discipline of nursing. The transition model using the CoI lens will identify role insufficiencies and role supplementation to reach role mastery of novice online nursing academics.

# APPENDIX 1: ETHICS APPROVAL PHASE I

Dear Omar,

The Chairperson of the Social and Behavioural Research Ethics Committee (SBREC) at Flinders University has reviewed and approved the modification request that was submitted for project 7151. A modification ethics approval notice can be found below.

## MODIFICATION (No.2) APPROVAL NOTICE

| | |
|---|---|
| Project No.: | **7151** |
| Project Title: | An evaluation of current online nursing education practice in Australia in relation to Community of Inquiry approaches to online learning |
| Principal Researcher: | Mr Omar Smadi |
| Email: | smad0001@flinders.edu.au |

| | | | |
|---|---|---|---|
| Modification Approval Date: | 13 September 2016 | Ethics Approval Expiry Date: | **31 December 2020** |

I am pleased to inform you that the modification request submitted for project 7151 on the 7 September 2016 has been reviewed and approved by the SBREC Chairperson. Please see below for a list of the approved modifications. Any additional information that may be required from you will be listed in the second table shown below called 'Additional Information Required'.

| **Approved Modifications** | |
|---|---|
| Extension of ethics approval expiry date | |
| Project title change | |
| Personnel change | |
| Research objectives change | |
| Research method change | |
| Participants – addition +/- change | |
| Consent process change | |
| Recruitment process change | |
| Research tools change | X |
| Document / Information Changes | X |
| Other (if yes, please specify) | |

| Additional Information Required |
| --- |
| None. |

## RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

**1. Participant Documentation**

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

  *This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.*

**2. Annual Progress / Final Reports**

Please be reminded that in order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research (March 2007)* an annual progress report must be submitted each year on **22 March** (approval anniversary date) for the duration of the ethics approval.

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please submit either (1) a final report; or (2) an extension of time request and an annual report.

Student Projects

The SBREC recommends that current ethics approval is maintained until a student's thesis has been submitted, reviewed and approved. This is to protect the student in the event that reviewers recommend some changes that may include the collection of additional participant data.

Your next report is due on **22 March 2017** or on completion of the project, whichever is the earliest. The report template is available from the Managing Your Ethics Approval SBREC web page. *Please retain this notice for reference when completing annual progress or final reports.*

**3. Modifications to Project**

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such proposed changes / modifications include:

- change of project title;

- change to research team (e.g., additions, removals, principal researcher or supervisor change);
- changes to research objectives;
- changes to research protocol;
- changes to participant recruitment methods;
- changes / additions to source(s) of participants;
- changes of procedures used to seek informed consent;
- changes to reimbursements provided to participants;
- changes / additions to information and/or documentation to be provided to potential participants;
- changes to research tools (e.g., questionnaire, interview questions, focus group questions);
- extensions of time.

To notify the Committee of any proposed modifications to the project please complete and submit the *Modification Request Form* which is available from the Managing Your Ethics Approval SBREC web page. Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

Change of Contact Details

Please ensure that you notify the Executive Officer if either your mailing or email address changes to ensure that correspondence relating to this project can be sent to you. A modification request is not required to change your contact details.

**4. Adverse Events and/or Complaints**

Researchers should advise the Executive Officer immediately on 08 8201-3116 or human.researchethics@flinders.edu.au if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

Kind regards
Andrea

---

**Mrs Andrea Fiegert and Ms Rae Tyler**
Ethics Officers and Executive Officer, Social and Behavioural Research Ethics Committee
Andrea - Telephone: +61 8 8201-3116 | Monday, Tuesday and Wednesday
Rae – Telephone: +61 8 8201-7938 | ½ day Wednesday, Thursday and Friday

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# APPENDIX 2: PHASE I ONLINE SURVEY

**Applicability of Community of Inquiry Framework to Online Nursing Education**

1. Welcome to My Survey

**What is this study about?**

**This survey is part of a larger project entitled 'An evaluation of current online nursing education practice in relation to a Community of Inquiry framework'. This survey will help to document the opinions of educational providers and course designers about the Community of Inquiry framework's applicability to online nursing education in a number of Australian universities. I have contacted you because you are involved in providing, designing or participating in online courses for nurses. This project has been approved by Flinders University- School of Nursing and Midwifery, Adelaide, South Australia.**

**What is the purpose of this study?**

**The main purpose of this survey is to explore the educational providers' and course designers' opinions on how applicable the concepts of Community of Inquiry are to online nursing education. This research will not only help to improve the design of future online courses, thereby influencing the educational experience of students and their learning outcomes, it also has the potential to inform the future work of nursing educators and educational designers and provide recommendations for implementation of more interactive, engaging, and meaningful online learning strategies.**

**What benefit will I gain from being involved in this study?**

**You will not directly benefit from being involved in this study. However, the sharing of your views and experiences will improve the planning, designing and delivery of future online courses and programs.**

**Will I be identifiable by being involved in this study?**

**No. We do not need your name and you will be anonymous.Your comments will not be linked directly to any one participant and organisation. You will never be identified in any future publication or public presentation associated with this research project.**

**Are there any risks or discomforts if I am involved?**

**There will be no risk or discomforts if you are involved. If you have any concerns regarding anticipated or actual risks or discomforts, please raise them with the investigator; contact the ethics committee or supervisors at Flinders University (Please see below for contact details).**

**How do I agree to participate?**

**Participation is voluntary. You may answer 'no comment' or refuse to answer any questions. Submitting this questionnaire will be taken as your consent to participate in the study.**

**Will I receive information about the results of this study?**

**The findings will be available through journal publications and conference presentations.**

**What will I be asked to do?**

**If you choose to do so, all we need you to do is complete this anonymous questionnaire. The questionnaire will take about 10-15 minutes to complete.**

1

**Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.**

**To start the survey, please click NEXT button below.**


**Investigators:**
**Mr Omar Smadi**
**School of Nursing and Midwifery**
**Flinders University**
**Ph: 08 82018785**
**e-mail: smad0001@flinders.edu.au**

**Supervisors:**
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**GPO Box 2100**
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**Dr David Gillham**
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**Adelaide SA 5001**

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**School of Nursing & Midwifery**
**Flinders University**
**GPO Box 2100**
**Adelaide SA 5001**

## Applicability of Community of Inquiry Framework to Online Nursing Education

### 2. Demographic Data

1. What is your age?

- ◯ 18 to 24
- ◯ 25 to 34
- ◯ 35 to 44
- ◯ 45 to 54
- ◯ 55 to 64
- ◯ 65 to 74
- ◯ 75 or older

2. In what Australian state or territory are you currently based for your job role? (Please select all that apply)

- ☐ Australian Capital Territory
- ☐ New South Wales
- ☐ Northern Territory
- ☐ Queensland
- ☐ South Australia
- ☐ Tasmania
- ☐ Victoria
- ☐ Western Australia
- ☐ Other (please specify)

3

3. **What is your level of employment?**

- ◯ Level A - Tutor/ Associate Lecturer
- ◯ Level B - Lecturer
- ◯ Level C - Senior Lecturer
- ◯ Level D - Reader/Associate Professor
- ◯ Level E - Professor
- ◯ Other (please specify)

4. Which of the following best describes your role? ( Please select all that apply)

- ☐ Teaching
- ☐ Course designer
- ☐ Research
- ☐ Other (please specify)

4

## Applicability of Community of Inquiry Framework to Online Nursing Education

### 3. Demographic Data

5. What level of course(s) do you teach? (Please select all that apply)

- [ ] I do not teach
- [ ] Bachelor Degrees
- [ ] Honours
- [ ] Graduate Certificates
- [ ] Graduate Diplomas
- [ ] Master Degrees
- [ ] Doctorates
- [ ] Other (please specify)

5

6. what topic content do you teach? (Please select all that apply)

- [ ] I do not teach
- [ ] Anatomy and Physiology
- [ ] Mental Health
- [ ] Primary Health Care
- [ ] Pathophysiology
- [ ] Aboriginal Health
- [ ] Pharmacology
- [ ] Professionalism
- [ ] Research
- [ ] Acute Care
- [ ] Aged Care
- [ ] Clinical
- [ ] Critical Thinking
- [ ] Ethics
- [ ] Communication
- [ ] Other

7. Which of the following best describes your mode of teaching?

- ( ) I do not teach
- ( ) Face-to-face only
- ( ) Online only
- ( ) A combination of face-to-face and online

8. **Thinking about your teaching in the last 12 months, what percentage of time do you spend in online mode?**

**Online**

## Applicability of Community of Inquiry Framework to Online Nursing Education

### 4. Demographic Data

9. What fraction of time do you work?

- ◯ Full time
- ◯ Part time
- ◯ Other (please specify)

10. Are you currently involved or ever been involved in curriculum design?

- ◯ Yes
- ◯ No

## 5. Demographic Data

11. About how many years have you been working in the area of nurse education or related research?

- ◯ Less than 1 year
- ◯ 1-5 years
- ◯ 6-10 years
- ◯ 11-15 years
- ◯ 16-20 years
- ◯ 21-25 years
- ◯ 26-30 years
- ◯ more than 30 years

12. About how many years have you been working in a curriculum design?

- ◯ n/a
- ◯ Less than 1 years
- ◯ 1-5 years
- ◯ 6-10 years
- ◯ 11-15 years
- ◯ 16-20 years
- ◯ 21-25 years
- ◯ 26-30 yeras
- ◯ more than 30 years

## Applicability of Community of Inquiry Framework to Online Nursing Education

6.

13. How much do you agree with the following statements?

| | Strongly Disagree | Somewhat Disagree | Neutral | Somewhat Agree | Strongly Agree |
|---|---|---|---|---|---|
| a. My institution offers all the support needed to set, design, and evaluate our online courses. | ○ | ○ | ○ | ○ | ○ |
| b. My institution has no theoretical framework to design and evaluate online courses. | ○ | ○ | ○ | ○ | ○ |
| c. Online or web-based communication is a poor medium for educational communities. | ○ | ○ | ○ | ○ | ○ |

14. How significant do you think the following statements are?

| | Strongly Not Significant | Somewhat Not Significant | Neutral | Somewhat Significant | Strongly Significant |
|---|---|---|---|---|---|
| a. Online course participants must be viewed as a community of learners. | ○ | ○ | ○ | ○ | ○ |
| b. Instructional designs or frameworks are essential to build an online course. | ○ | ○ | ○ | ○ | ○ |

15. Do you use an explicit theoretical framework to guide you in the design and the evaluation of online nursing teaching and learning? If Yes, what is it?

○ No

○ Yes, what is it?

16. In your opinion as a nurse educator and/or researcher, please rank the following teaching modes according to suitability to design nursing education curriculum. Drag and drop the following choices in order of suitability, with your top choice in the first position.

⠿ ▲▼ Blended Learning ( combination of face-to-face and online)

⠿ ▲▼ Online only

⠿ ▲▼ Face-to-face only

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## Applicability of Community of Inquiry Framework to Online Nursing Education

7.

17. **According to the original developers of the Community of Inquiry framework, Social Presence in online course means: "The ability of learners to project themselves socially and emotionally, thereby being perceived as "real people" in mediated communication.**
**How applicable do you think the following statements about social presence are to online nursing education?**
**(You may add additional comments after each statement).**

| | Strongly Inapplicable | Somewhat Inapplicable | Neutral | Somewhat Applicable | Strongly Applicable |
|---|---|---|---|---|---|
| **a. Creating "Social Presence" in an online course is dependent upon the learner being able to create a sense of their personal identity.** | ○ | ○ | ○ | ○ | ○ |
| Please comment (Optional) | | | | | |
| **b."Social Presence" in an online course can be best promoted if students feel they own the online space.** | ○ | ○ | ○ | ○ | ○ |
| Please comment (Optional) | | | | | |
| **c."Social presence" in an online course will only be established if learners have a feeling of safety (e.g. the users have reasonable expectation that their input will not be ridiculed or result in their prejudicial or unfair treatment).** | ○ | ○ | ○ | ○ | ○ |
| Please comment (Optional) | | | | | |
| **d. Online or web-based communication is an excellent medium for social interaction.** | ○ | ○ | ○ | ○ | ○ |
| Please comment (Optional) | | | | | |

10

18. According to the original developer of the Community of Inquiry framework, Cognitive Presence in an online course means " The extent to which leaners are able to construct and confirm meaning through sustained reflection and discourse".
How applicable do you think the following statements about cognitive presence are to online nursing education?
(You may add additional comments after each statement).

| | Strongly Inapplicable | Somewhat Inapplicable | Neutral | Somewhat Applicable | Strongly Applicable |
|---|---|---|---|---|---|
| **a. "Cognitive Presence" in an online course must start with a triggering event where some issue or problem is identified for further inquiry.** | ○ | ○ | ○ | ○ | ○ |
| Please comment (Optional) | | | | | |
| **b. "Cognitive Presence" in an online course is created by learners exploring the issue, both individually and cooperatively through critical reflection and discourse.** | ○ | ○ | ○ | ○ | ○ |
| Please comment (Optional) | | | | | |
| **c."Cognitive Presence" in an online course is created by learners constructing meaning from the ideas developed during the exploration phase.** | ○ | ○ | ○ | ○ | ○ |
| Please comment (Optional) | | | | | |

19. According to the developer of the Community of Inquiry framework, Teaching Presence means :"
The design, facilitation, and direction of a "cognitive and social" process for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes.
How applicable do you think the following statements about teaching presence are to online nursing education?
(You may add additional comments after each statement).

| | Strongly Inapplicable | Somewhat Inapplicable | Neutral | Somewhat Applicable | Strongly Applicable |
|---|---|---|---|---|---|
| **a.To establish "Teaching Presence" in an online course the teachers must facilitate the discourse by defining and initiating discussions topics and identifying shared personal meaning.** | ○ | ○ | ○ | ○ | ○ |
| **b. "Teaching Presence" in an online course allow the teacher to give direct instructions by focusing the discussion, questioning, giving direct feedback, injecting of new knowledge and giving technical support.** | ○ | ○ | ○ | ○ | ○ |

Please comment (Optional)

Please comment (Optional)

20. On a scale from 1 (never heard of it) to 5 (extremely familiar), please rate how familiar you are with the "Community of Inquiry" framework before this survey.
The more you are familiar with the framework, the higher you would rate it. The less you are familiar with the framework, the lower you would rate it. If you have never heard of this framework before, select 1 (never heard of it).

| 1 Never heard of it | 2 | 3 | 4 | 5 Extremely familiar |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

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## Applicability of Community of Inquiry Framework to Online Nursing Education

8.

**If you are familiar with the Community of Inquiry framework, please answer the following questions:**

21. Please write a brief statement describing what the Community of Inquiry framework is.

22. What do you like most about the Community of Inquiry framework?

23. What do you most dislike about the Community of Inquiry framework?

24. How often do you explicitly draw on Community of Inquiry framework in designing online topics/courses/curricula?

| 1 Not at all | 2 | 3 | 4 | 5 All the time |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

13

25. How often do you explicitly draw on Community of Inquiry framework in evaluating online topics/courses/curricula?

| 1 Not at all | 2 | 3 | 4 | 5 All the time |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

26. How did you first become aware of the Community of inquiry framework? (Please select all that apply.)

- ☐ **Journal Article**
- ☐ **Colleagues talked to me about it**
- ☐ **Website(s)**
- ☐ **Workshop**
- ☐ **Conference**
- ☐ Other (please specify)

27. **Please rank the following "Presences" according to how important they are to the design of online courses for nurses.**
**Drag and drop the following choices to arrange them in order of importance, with your top choice in the first position.**

- **Social Presence**
- **Teaching Presence**
- **Cognitive Presence**

28. How likely is that you would recommend Community of Inquiry framework to a friend or colleague?

| 1 Not at all likely | 2 | 3 | 4 | 5 Extremely likely |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

## Applicability of Community of Inquiry Framework to Online Nursing Education

### 9. Thank you

Thank you very much for doing my survey. Click "Done" button to submit the survey.

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# APPENDIX 3: ETHICS APPROVAL PHASE II

**From:** Human Research Ethics
**To:** Omar Smadi; Steve Parker; Fathimath Shifaza; drdavidgillham@gmail.com
**Subject:** 8307 ETHICS final approval notice (1 May 2019)
**Date:** Wednesday, 1 May 2019 8:46:07 AM
**Importance:** High

Dear Omar,

The Acting Chair of the Social and Behavioural Research Ethics Committee (SBREC) at Flinders University considered your response to conditional approval out of session and your project has now been granted final ethics approval. Your ethics approval notice can be found below.

## APPROVAL NOTICE

| | |
|---|---|
| Project No.: | **8307** |
| Project Title: | The awareness and applicabilty of the Community of Inquiry (CoI) framework to online nursing education in Australian |
| Principal Researcher: | Mr Omar Smadi |
| Email: | smad0001@flinders.edu.au |
| Approval Date: | 1 May 2019 |
| Ethics Approval Expiry Date: | **30 April 2021** |

The above proposed project has been **approved** on the basis of the information contained in the application, its attachments and the information subsequently provided with the addition of the following comment(s):

**Additional information required following commencement of research:**

Permissions
Please ensure that copies of the correspondence granting permission to conduct the research from Course Coordinators are submitted to the Sub-Committee *on receipt.* Please ensure that the SBREC project number is included in the subject line of any permission emails forwarded to the Committee. Please note that data collection should not commence until the researcher has received the relevant permissions (item D8 and Conditional approval response – number 8).

**RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS**

1. **Participant Documentation**

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethics approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.*

2. **Annual Progress / Final Reports**

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research (2007-Updated 2018)* an annual progress report must be submitted each year on the 1st May (approval anniversary date) for the duration of the ethics approval using the report template available from the Managing Your Ethics Approval SBREC web page. *Please retain this notice for reference when completing annual progress or final reports.*

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please submit either (1) a final report; or (2) an extension of time request and an annual report.

Student Projects

The SBREC recommends that current ethics approval is maintained until a student's thesis has been submitted, reviewed and approved. This is to protect the student in the event that reviewers recommend some changes that may include the collection of additional participant data.

Your first report is due on 1st May 2020 or on completion of the project, whichever is the earliest.

3. **Modifications to Project**

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such proposed changes / modifications include:

- change of project title;
- change to research team (e.g., additions, removals, principal researcher or supervisor change);
- changes to research objectives;
- changes to research protocol;

- changes to participant recruitment methods;
- changes / additions to source(s) of participants;
- changes of procedures used to seek informed consent;
- changes to reimbursements provided to participants;
- changes / additions to information and/or documentation to be provided to potential participants;
- changes to research tools (e.g., questionnaire, interview questions, focus group questions);
- extensions of time.

To notify the Committee of any proposed modifications to the project please complete and submit the *Modification Request Form* which is available from the Managing Your Ethics Approval SBREC web page. Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

Change of Contact Details

Please ensure that you notify the Committee if either your mailing or email address changes to ensure that correspondence relating to this project can be sent to you. A modification request is not required to change your contact details.

**4. Adverse Events and/or Complaints**

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116 or human.researchethics@flinders.edu.au immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

Kind regards
Rae

---

**Ms Andrea Mather** (formerly Fiegert) **and Ms Rae Tyler**
Ethics Officers and Executive Officers, Social and Behavioural Research Ethics Committee

| | |
|---|---|
| Ms Andrea Mather \| Monday - Friday | T: +61 8201-3116 \| E: human.researchethics@flinders.edu.au |
| Ms Rae Tyler \| Monday, Wednesday and Friday mornings | T: +61 8201-7938 \| E: human.researchethics@flinders.edu.au |
| A/Prof David Hunter \| SBREC Chairperson | T: +61 7221-8477 \| E: david.hunter@flinders.edu.au |
| Dr Deb Agnew \| SBREC Deputy Chairperson | T: +61 8201-3456 E: deb.agnew@flinders.edu.au |
| SBREC Website | Social and Behavioural Research Ethics Committee (SBREC) |

Research Development and Support |Union Building Basement
Flinders University
Sturt Road, Bedford Park | South Australia | 5042
GPO Box 2100 | Adelaide SA 5001

# APPENDIX 4: SEMI-STRUCTURED INTERVIEW SCHEDULE

College of Nursing and Health Sciences
GPO Box 2100
Adelaide SA 5001
Tel: 08 82013402
Fax: 08 8276 1602
Steve.parker@flinders.edu.au
http://www.flinders.edu.au/people/steve.parker
CRICOS Provider No. 00114A

**APPENDIX-A: SEMI-STRUCTURED INTERVIEW TOPICS AND QUESTIONS.**

Name: Date:

## Introduction

- Welcome the participants
- Introduce myself
- Explain how the interview will work
- Remind them of their rights

## Question 1

A) Could you tell me about your online or blended nursing course/topic?
B) What are you trying to achieve with it?

*For each main question, follow-up questions as needed (e.g., seeking clarity, asking for elaboration)*

## Question 2

When you designed your course/topic, did you have a design framework in mind? >> **Yes:** How did you apply it? **No:** what, if any, criteria did you use to makes sure your topic/course was well designed?

## Question 3 [Social Presence]

- One of the things I am interested in is how courses help students feel like they are part of a community of learners? What aspects of your topic/course do you think promotes that?

## Question 4 [Teaching presence]

What do you see your role as a teacher [or designer] in an online/blended course?

## Question 6

Do you like to add anything about the topic of this interview?

## Question 7 (Have you heard of the CoI framework?)

- If yes : Tell me more about this framework
- If no

I conclude the interview by thanking them. Notes

# APPENDIX 5: FOCUS CODING AND CONCEPT MAP SHOWING QUOTES, IDEAS, AND PATTERNS OF MEANING

| The coding templates of CoI framework | | | This study finding | |
|---|---|---|---|---|
| **Elements** | **Categories** | **Indicators (examples only)** | **Sub-themes** | **Example quotes from the participants** |
| **Cognitive Presence** | • Triggering Event | • Sense of puzzlement | • Asking questions in the form of a written assignment. | *P10: "I supposed what we're relying on, is the assessment tasks and what they write in their writing [ will evaluate their thinking]"* |
| | | | • The use of discussion forums | *P7: "I put that [questions] when I put the post up or any one thing at a time. Yeah. And then I make comments on it. So, I know that they're thinking and engaging and then I make comments to encourage them to talk more about stuff".* |
| | | | • The problem/scenario or case-based assignments | *P4: "So, problem-based learning is probably another area that is in the topic as well. So, the students are given scenarios within their tutorials and they've got to then solve the problems".* |
| | • Exploration | • Information exchange | • Group work discussion | *P11: "[a] Learning activity that students do in small groups and then I ask them to share that information back.* |
| | | | • Sharing the information via discussion forums | *P4: "So, in each of the topics there is a scenario for that week and in them discussing the scenario is where they get to share their knowledge about what they already know about the scenario.* |
| | • Integration | • Connecting ideas (scaffolding) | • Scaffolding in general knowledge | *P1: "I designed the topic to provide scaffolding for first-year learning. Because it is the first time that they've studied at university."* |
| | | | • Scaffolding within the same topic | *P4: "So, we are scaffolding that learning throughout the course but also throughout the whole degree".* |
| | | | Scaffolding between theory and practical placement | *P4: also, placement as well. So they've actually got some experiences that they can bring as well that they can share with the class. So experiential learning as well.* |
| | • Resolution | • Application / new ideas | Applying by presenting | *P11: "But that whole group has to then present the information that they have identified. Talk back to the rest of the group.* |
| | | | Applying by reflecting and evaluating | *" I get them [the students] to have a look at -through the critical reasoning cycle- to focus on the evaluating the outcomes and the impact of those outcomes[…..]and reflective of their own contributions and what they did do and how they had a positive impact".* |
| **Social Presence** | • Affective (personal) expression | • Self-projection/expressing Emotions | Personalised the communication | *P10: "We always personalize all the correspondence to the them so call them by their name. And that's I mean that's pretty easy to do in the electronic environment."* |
| | | | Student introduction of themselves | *P11: "We also have an area, where I encourage them to go in and introduce themselves."* |
| | | | Welcoming video | *P6: "But what I want to create in my online space is a feeling that they are not alone". First thing they see is this video of me showing them how to navigate this environment and a lot of feedback saying I like it."* |
| | | | Acknowledging the personal and work experience of the students | *P11: "I do get them to talk about their own experience, their experience can be with their own social networks within their own family within their own community and I do ask them to share examples from their experience".* |
| | | | Disclosure | *P6: I start off with get everyone to introduce yourself in the asynchronous mode of the discussion form and then I set the course I start off with. This is me. This is who I am and always put a Ice Breaker type thing on they're saying and this makes me happy. And now can you tell me where you work why you're doing the course and what makes you happy. So then I always start off with something else that's funny like I like to sit with a glass of wine watching the sunset* |

| | | | | |
|---|---|---|---|---|
| | | | | *and then you get loads of people coming in. Also why I love glass wine and then relaxes everyone* |
| | • Open Communication | • Trust/Risk-free expression | Facilitate the communication | *P10: "We have a web room and it is available any time for students to use. So, if they want to meet other students in the room they can"* |
| | | | Create safe and respectful environment | *P11: "There's a lot of proximal processes that are going on across the semester that are designed to help students to feel safe in a context of sharing and growing and developing their understanding of strength-based nursing."* |
| | | | the feeling of unsafe and uncomfortable to use university discussion forums. | *P1:"in the current climate a lot of students choose not to use that [discussion forum] and will go outside of that to a [private social media] site."* |
| | | | Social media groups are risk-free, and students feel safer to use it. | *P2: "But I think that we need to support that, and we need to find a platform where it can happen efficiently and safely. I think it's always hard having a tutor, or a topic coordinator involved in a group like that though, because they're not going to say things that they would normally say to each other".* |
| | | | The reason behind using outside communication tool (social media pages)<br>Familiarity with the<br>Quick and easy app to use<br>Difficult university platform<br>The ability to feel risk-free away from the tutor and topic coordinator | *P1:"I think Facebook is a social networking platform that the students are really familiar with"*<br>*P2: "There's an app on their phone they can quickly type it in, done whereas they have to log onto [university learning system] and there's not an app for like the discussion forums and I just think it's not very user friendly."*<br>*P4 said:*<br>*"they can't get on there [discussion forum] and criticize the topic coordinator because that's not the platform we "do that on. I think that's what they've got in their mind. I can't criticize my tutor on that platform because we have a thing that talks about net etiquette."*<br><br>*P2: "However, I think the fact that the university might disagree with something that they don't want to sort of I guess sacrifice their grades or anything.*<br>*P7: "I think it's an easy platform. Most people have a Facebook account. you See ...and it's easy to share funny videos. or mems and I think it just appeals to a younger generation to be honest."* |
| | • Group Cohesion | • Encouraging collaboration/ interactivity | Encourage collaboration via discussion forum | *P9: "And so the question once they initiate in the journal forums, they have a group. They're all allocated a group and they do get in there and discuss a lot of things within their groups and that sort of student led but I offer feedback to them."*<br><br>*P11: "the students are expected to participate in all those learning activities and demonstrate that they have participated in those learning activities collaboratively either through posting in the discussion group or through their attendance and active participation in the workshop space workshop."* |
| | | | Peer review groups | *P8: "[….] the students are asking and answering each other on the forum answering each other's questions through that is one of the assessments ..its three students doing the assessment together."* |
| | | | Wiki pages | *P5: "Now, the Wikis but they were great because we got them to work in groups so we used to try and do quite a lot of group work so that they worked as a group together rather than isolation. So that encouraged them that they had to go in and do something and contribute. So that was another one of the ones that went as part of that mark."* |

| | | | | |
|---|---|---|---|---|
| | | | Cocreation of the activities with the students | *P11: "So the students are actually encouraged to co-create the online learning material. So, the last three years the learning material online has grown but it has had students' contributions added to it."* |
| | | | Design presentation together | *P4: "the students would then part of their assessment is they do a presentation on decision making theory so they would have a tutorial where they are presented with. They come prepared having looked at the four theories to discuss those theories. They then need to go away in their groups."* |
| | | | Student led online discussion groups | *P9: They're all allocated a group and they do get in there and discuss a lot of things within their groups and that sort of student led but I offer feedback to them.* |
| | | | Creating learning community<br>Allow the students to help in creating the materials | *"You know ultimately I think it just it's a supportive community that really helps students realize that they're not alone in some of the topics that they rise".*<br><br>*P11: "So I write in the unit outline, we are expecting their active participant in the unit. you're better off creating a space where they are actually contributing to the learning material. so that a community of learning. And so the unit really is driven through student engaging with the teaching team and with each other as being collaborators in developing the learning material and sharing of experience."*<br><br>*P10: "So I think that makes them feel like they're in a community. If somebody is responding to the questions promptly [….] is getting back to them within 24 hours. They're part of community".* |
| | | | prompt response and feedback to online requests | *P2: "but I think that community is something that's lacking in this subject. And I think that it does decrease engagement with the content."…. "I mean trying to create a community through the fact that they have something in common this subject is what we aim to do but it's not always realistic. And we've got so many students and it's hard to provide personalized education when we're trying to target all sorts of learners from different pathways different ages different backgrounds different languages. Yes, it's really difficult."* |
| | | | Challenges to build learning community<br>students' number | *P5:So, you know that community of learning is incredibly important especially postgrad. I would suggest that again it's horses for courses and there is a time when you must deliver content that is just required that they need to learn and know. And that doesn't necessarily need a community of engagement" …"And so basically it really is more about using the community of students the community of learners to actually be the ones that actually directed a lot of it and you sat back more and facilitated rather than taught."*<br>*P5: "Well in a discussion forum the minute you only have one or two students you've lost the whole community of learning approach because you cannot develop that within with one or two people."* |
| | | | The effect of the nature of the topic and the mode of delivery. | *P6: "I guess I this sometimes they succeed and sometimes I don't and I don't change anything so I think some of it's to do with the community that has joined in."*<br><br>*P9: "everyone's shift workers. And it's really hard to connect with everyone at once. So it's basically get in the unit sit the unit up they can access it whenever they want. I contact them with just news announcements or emails. We also have journal groups where I connect to the students in there as well. Write that journal entries and provide feedback and just answering lots."* |

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| **Teaching Presence** | Design And organization | Setting Curriculum and activities | Match the learning outcomes | *P1: "My role as a topic coordinator is to ensure that as many students meet those learning outcomes as they can in the time that they are enrolled in the topics"[…] "the learning outcomes provide the basis of what content is delivered. So, each topic has its own learning outcomes and the content is curated around what those learning outcomes".*<br>*P10: P10 said: "We have assessment items that are linked with each of the learning outcomes".*<br>*P2: "I think looking at the tutorials and what's taught in the tutorials and the online content that's directly relating to the learning outcomes and then making sure the assessments match the learning outcomes".*<br>*P3: "obviously they're [Learning Outcomes] the gold standard of what we want these students to achieve and come out with at the end after having done this topic".*<br>*P5: "I have to make sure of the quality of the of the topic itself and that it's actually meeting the desired learning outcomes […] You have to have a well-designed topic that the students are going to be able to achieve by and learn from."* |
| | | | Setting curriculum | *P4: "I see myself as designing it to have students that will want to learn, not they have to or need to know this."[…..]"So I go right back to the clinical setting when I'm designing and I say okay how are they going to need to know this. How can I make these fun and exciting for the students?"*<br>*P6: "I put all the tools down for them, all the content for them, all the readings for them and put all the questions down to get them thinking and I am constantly there in the space trying to get them to pick all this information up".* |
| | | | Designing and organise and select the content | *P10 "So my role is to look at the unit outline and initially resettle the assessment tasks that are linked to the learning outcomes then go in there and look at all the online material to say that it is up to date, relevant and user friendly."* |
| | | | Time allocation and setting the calendar | *P10: "Obviously there's readings. So when they go into the course it's it will have modules and usually those modules are dated and there's a calendar that they need to stick to".* |
| | | | The Issue of being a designer | *P5:"I don't think you are [as a topic coordinator] a designer and I think that's where we have so much trouble because of our expertise is not design."*<br>*P6: "I didn't. When I first started this. But the more I got into it and the more I'm learning about it. Yeah, I see I design. And that's something I wasn't taught. That's something I've had to pick up on my own as I've gone along"*<br>*P6: P6: "I didn't. When I first started this. But the more I got into it and the more I'm learning about it. Yeah, I see I design. And that's something I wasn't taught. That's something I've had to pick up on my own as I've gone along"*<br>*P7: "I wouldn't call myself as a designer. I guess I'm going to be a designer soon but, I wouldn't see myself as a designer just yet."*<br>*P8: "Yes I've had to design several courses. But in saying that had peer reviews and some content experts assist me or review my content to make sure that it was pedagogy sound and that it that it was working Ok"* |

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| | Facilitating Discourse | Shaping constructive exchange | Facilitate knowledge and discourse | *P2 said: "from my perspective my role is to facilitate knowledge. I must admit even when I'm doing the web conference, I'll try and facilitate discussion rather than dominate the discussion."*<br>*P6 said: "I'm facilitating their learning journey and that's absolutely where I see myself."*<br><br>*P7 Said: "I guess I do see myself as a facilitator for teaching."*<br>*P9:"It's a funny thing in an online environment. you are almost not a teacher you're a facilitator. I really just shift content around and. Updated it. and put in a few posts and do some lectures but I don't feel like I'm a teacher."* |
| | | | The issues of discussion forum: **The effect of grading discussion forums** | *P10: "Those three main assessment items in the subject and the first assessment item where they do an online discussion….So I have a formal online discussion that they have to do with other students that has been marked but they also have an informal discussion areas where they can access"……. "they have got to submit as part of their assignment four best discussions posts. part of the Criteria is that they have to actively participated."*<br>*P11: "Those three main assessment items in the subject and the first assessment item where they do an online discussion….So I have a formal online discussion that they have to do with other students that has been marked but they also have an informal discussion areas where they can access"……. "they have got to submit as part of their assignment four best discussions posts. part of the Criteria is that they have to actively participated."*<br><br>*P11: "Me and my teaching team, engaged in those discussions. Treat the students on equal basis. The students can see us there. But i know when students just post something that they think no one is going to read until it gets assessed then that's disempowering and disengaging. I said Why would I bother. And I agree with that. Why would they bother. So I think my students in my third year don't engage in a supplementary way with the discussion groups as much as I would like them to, because they are forced to engage with inappropriate didactic sort of punitive approach rather than a collaborative facilitating approach."* |
| | | | The underuse of discussion forum | *P2: "However, time is another factor. So tutors are tapped out for time like it is we can't address every little thing but usually with the big things that aren't getting through to students we do try and do an announcement or contact all students and sort of give them that information so"* |
| | | | Useability of discussion | *P4 said: "I would say it's being underused because I feel that if students don't feel comfortable with that platform, they won't use it."*<br>*P3: We have a discussion board. Yes. And unfortunately, it's used mostly for introductions* |

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| | | | The effect of number, subject and tutor involvement | *because a lot of these external students live-in all-around Australia."*<br><br>*P2: "I don't think so no I don't think it's very user friendly."*<br><br>*P4:"They probably do. Yeah I think they probably need to be upgraded to what the students are comfortable with using".*<br>*P4: "They probably do. Yeah I think they probably need to be upgraded to what the students are comfortable with using".*<br><br>*P9: "Yes , discussion forums. so there's a questions to lecturer one where they can contact me that's pretty well used. and then there is student chat forums as well which I don't really monitor. I don't think that that will used.*<br><br>*P8"I think this course is pretty straightforward. So I don't know that the forums are really necessary for this course in second year level. I think it would probably be used more in first year as the students are getting used to what's required But I think by second they are already aware of the requirements etc."*<br><br>*P4: " So postgraduate. I started off with one hundred and five enrolments and I have ninety-seven. So the undergraduate topic has seven hundred and twenty six students. I don't know if it's if it's got to do with the difference of undergraduate to postgraduate and what that difference means. I'm not sure if that then makes a difference you know whether you know. Next year do I go on the discussion forum for seven hundred and twenty students six and give a bit of my background and I don't know and don't know if that would make a difference and something to try to see whether or not it brings those students together because each availability has its own discussion forum. So then when you've got three availabilities running at once you're going in and out. Just to look at all these."*<br><br>*P9: "I think if I had a small cohort of like 30 students I'd probably use it quite a lot."*<br>*P7:"I have 4 discussion forums. The third and fourth forums were attended by staff. And the student's engagement is much better when the instructor involved". And I think what's a really positive change in staff's involvement been in the third and fourth forums and that's really enabled students to have free discussion. And it's a part that they love the most"* |
| | Direct Instruction | Focusing and resolving issues | | *P11 said: "I always see my role. It has a lot of expert knowledge to bring to the students to expose it. to what I try to do is not be didactic. I try to create a context where students engage with learning material and through that engagement, We grow in our understanding of how that knowledge base can be translated into nursing practice".*<br>*P5:"So that was all around instructive learning rather than just long written segments. The students were said to be very clear and very concise. So, we did a lot of that instructional language was incredibly important and it was drummed into us that we didn't do a lot of this big heavy you know.* |

# APPENDIX 6: PERMISSION TO USE COI FRAMEWORK FIGURES

**From:** D. Randy Garrison
**To:** Omar Smadi
**Subject:** Re: Permission to use CoI framework and Practical Inquiry figures
**Date:** Monday, 24 May 2021 9:50:27 PM

Omar,
You have my permission to use the CoI figure in your thesis and publications.
Best wishes,
DRG
Sent from my iPad
On May 24, 2021, at 12:44 AM, Omar Smadi <omar.smadi@flinders.edu.au> wrote:

[ EXTERNAL]
Dear Dr R. Garrison / the corresponding authors of "Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education"
Author: D.Randy Garrison,Terry Anderson,Walter Archer
Publication: The Internet and Higher Education
Publisher: Elsevier
Date: Spring 1999
I am a PhD student from Flinders University of South Australia.
I would like your permission to use the
1. The Community of Inquiry figure.
2. The practical inquiry figure
in my thesis and my publications under the following conditions:
• I will use the figures for my research study ( in thesis and journal articles) and will not sell or use them with any compensated or curriculum development activities.
• I will include the appropriate reference to the article mentioned above, journal and publisher.
If these are acceptable terms and conditions, please indicate so by replying to this email stating that you grant me permission to use the aforementioned figures.
**Omar Smadi**, RN. MNs, PhD candidate
College of Nursing & Midwifery
Flinders University
Sturt Road
BEDFORD PARK SA 5041

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