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Instructional Strategies and Activities that Inform the Community of Inquiry (CoI) Framework

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Instructional Strategies and Activities that Inform the Community of Inquiry (CoI) Framework

by

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We hereby certify that this dissertation, submitted by Stephan Junion, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

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An Abstract of a Dissertation Submitted to Nova Southeastern University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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The Community of Inquiry (CoI) framework is one of the more widely used frameworks supporting online learning effectiveness. While there has been extensive research on the development and validation of the CoI framework and survey, less attention has been devoted toward implementation of a CoI and how practitioners design instructional strategies and activities that support this type of constructivist online learning environment.

The research literature about the CoI along with phenomenological interviews with expert designers guided the creation of three products: the Community of Inquiry (CoI) Instructional Strategies and Activities Guide, Community of Inquiry (CoI) Instructional Strategies and Activities Job Aid, and the CoI Design Framework. These products were validated by an expert panel using a three-round Delphi study.

As an original contribution in the field of computing technology in education, this design and development research has theoretical and practical significance. First, it serves as a springboard for further understanding and discussion of the gap between the CoI as a constructivist framework and the more prescriptive world of instructional design. Second, it expands the guidance for practitioners who desire to create a community of inquiry in an online learning environment.
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Table of Contents

Abstract iii
Acknowledgments iv
List of Tables vii

Chapters

1. Introduction 1
Background 1
Problem Statement 2
Goals 3
Research Questions 3
Relevance and Significance 8
Barriers and Issues 12
Limitations and Delimitations 14
Acronyms 16
Definition of Terms 17
Summary 18

2. Review of the Literature 20
Introduction 20
CoI Overview 20
Cognitive Presence 21
Social Presence 23
Teaching Presence 26
CoI as a Valid Framework 28
Learning and Instructional Design Theory 32
The Major Activities of Instructional Development 33
The CoI Framework and Elements of Instructional Design Theory 34
Instructional Strategies 36
The Importance of Instructional Strategies on the Community of Inquiry 37
Constructivists Learning Environments 39
Review of ID Models, Frameworks and Theories that Support Constructivist Learning 41
Model for Designing Constructivist Learning Environments 42
Instructional Transaction Theory 42
Integrated Framework of Constructivist-Based Curricula Design 43
Online Collaborative Learning Framework 44
Guidelines for Online Problem Based Learning (PBL) 46
Implementing a Constructivist Approach – Issues to Consider 47
Summary 49

3. Methodology 51
Overview of Design and Development Research 51
Research Design 52
Phase 1: The Literature Review 54
Phase 2: Instructional Design Practitioner Interviews 57
Interview 1: Focused Life History Interview Questions 67
Interview 2: Details of the Experience Interview Protocol and Question 70
Interview 3: Reflection on the Meaning Interview 71
Phase 3: Development of the Work Products 73
Phase 4: Validation of Models and Tools 74
Formats for Presenting Results 79
Resource Requirements 80
Summary 80

4. Results 82
Introduction 82
Phase 1: Literature Review 84
Phase 2: Instructional Design Practitioner Interviews 90
Phase 3: Development of CoI Instructional Strategies and Activities Guide, Job Aid, and Design Framework 102
Phase 4: Validation of the Guide and Job Aid 108
CoI Instructional Strategies and Activities Job Aid Review 111
Summary of Results 117

5. Conclusions, Implications, Recommendations and Summary 118
Conclusions 118
Implications 123
Recommendations 126
Summary 129

Appendices 133
A. The Community of Inquiry (CoI) Instructional Strategies and Activities Guide 133
B. The Community of Inquiry (CoI) Instructional Strategies and Activities Job Aid 199
C. Instructional Review Board Documents 222
D. Phenomenological Interview Emails 233
E. CoI Study Flyer 237
F. Nomination Email for Interviews 239
G. Sample Transcription of Interviews 242
H. Delphi Panel Info and Instructions 244
I. Delphi Panel Round 1 Instructions 248
J. Document of Resolution for Delphi Panel Round 1 253
K. Delphi Panel Round 2 Consolidated Feedback 260

References 265

List of Tables

Tables

1. Community of Inquiry Coding Template 22

2. Communication Strategies to Improve Online Social Presence in CMC Environments for Both Genders 27

3. Research Purposes, Participants, Methods, and Instruments by Phase 55

4. Criteria for ID Model Literature Review 57

5. Summary of Steps for Interviewing Practitioners 64

6. Practitioner Selection Criterion 65

7. Focused Life History Interview Questions 69

8. Details of the Experience Interview Protocol and Questions 70

9. Reflection and Meaning Interview Protocol and Questions 71

10. Delphi Panel Selection Criterion 76

11. Budget 81

12. Focused Life History Interview Questions 95

13. Details of the Experience Interview Questions 95

14. Reflection and Meaning Interview Questions 96

Chapter 1

Introduction

Background

The Community of Inquiry (CoI) framework describes how learning takes place in an online learning environment through the educational transaction that occurs at the intersection of social, teaching, and cognitive presence (Garrison, Anderson, & Archer, 2000). Instructional strategies are used to determine how to present instruction to learners (Dick, Carey, & Carey, 2001) "through prescribed sequences and methods of instruction to achieve a learning objective" (Ross et al., 2007, p. 717). Incorporating instructional strategies and activities as part of the CoI framework should help instructional designers and instructors enable learners build knowledge. The purpose of this study is to develop and validate instructional strategies and activities that inform the CoI framework and support practitioners in creating a community of inquiry.

Garrison et al. (2000) highlight the significance of the role of the designer in creating a structure and facilitation of learning in online learning. The authors, even in the earliest stages of the development of the CoI model, state the need for "determining how best to design and conduct a computer conference for the purposes of meaningful

and worthwhile learning outcomes" (p. 97). In order for the educational transaction to take place, design considerations apply to each of the three presences – social, cognitive, and teaching (direct facilitation). Swan and Shih's (2005) study regarding social presence, student satisfaction, and perceived learning highlight the need for further research on design aspects of the CoI. Based on their results, they suggest a number of design considerations and instructor behaviors to further impact social presence and perceived learning. Swan and Shih's (2005) recommendations include designing online discussions to support "pro-social" (p. 131) instructor behaviors and the training of students in social presence to support student competence in using online discussions.

Problem Statement

CoI studies to date have primarily focused on identifying levels of social, teaching, and cognitive presence attained either through content analysis or via the CoI survey (Akyol, Garrison, & Ozden, 2009; Arbaugh et al., 2008; Bangert, 2009; Carlon et al., 2012; Shea & Bidjerano, 2009). What has not been provided is insight into how the levels of social, cognitive, and teaching presence were achieved from an instructional design theory or model perspective. Based on the current review of literature, there is a lack of emphasis and guidance as to how to create or effectively design interactions – in this case, instructional strategies and activities - to affect the levels of social, cognitive, and teaching presence. It is critical to begin to create a research base that focuses on the role of instructional design and development theory – specifically, how instructional strategies and activities can inform the CoI framework as well as how instructional strategies and activities can support instructional designers and instructors working within an online learning environment (OLE) to create an online community of inquiry.

Goals

The goal was to provide practitioners of instructional design and development (IDD) concrete instructional strategies and activities that inform the CoI framework and can be used in the design and development of an effective online community of inquiry. The products of this effort include a Community of Inquiry Instructional Strategies and Activities Guide, Community of Inquiry (CoI) Instructional Strategies and Activities Job Aid, and the CoI Design Framework. These documents support the practitioner in the design and selection of instructional strategies and activities that support the development of a community of inquiry.

Research Questions

The following research questions guided the investigation:

1. How can the study of instructional design theory and models inform the CoI framework? This question aims to address the theoretical foundations of instructional design theories and models and the CoI in order to determine how the two relate to each other and how researchers and practitioners can synthesize and leverage the two fields of study. For example, the CoI framework is a theoretical framework that is descriptive of how learning takes place among a community of learners (Garrison & Arbaugh, 2007). Instructional design theories are prescriptive in nature (Reigeluth, 1999); that is, instead of focusing on what it looks like, design theory focuses on how to make it (Reigeluth, 1983).
2. What existing instructional design and development theories and models guide designers and instructors in implementing the CoI framework? This

question was inspired by Tracey's (2009) research question, "What are the components of a design model that are oriented toward addressing the nature of multiple intelligences?" (p. 371). The difference is that this study's question aims to identify the types of ID theories and models that are being used to implement the CoI and why.

3. What instructional strategies and activities support the CoI framework? Similar to research question two, the philosophical considerations of the CoI were analyzed with the intention of determining which instructional strategies work best within the CoI framework. For example, one might assume that only constructivist instructional strategies are appropriate since the CoI is "consistent with constructivist approaches to learning and higher education" (Garrison & Arbaugh, 2007, p. 158) but in fact, other types of direct instructional strategies (e.g., information presentation) might also serve a purpose (Shea & Bidjerano, 2009).
4. Given the CoI framework, what instructional strategies and activities are needed to guide practitioners in creating online communities of inquiry? In other words, given the CoI framework, what instructional prescriptions (i.e., strategies and activities) can be offered to guide practitioners in creating online communities of inquiry?

The research questions served as a funnel to distill and create tangible work products for practitioners to use during the design and development of courses using the CoI framework. Each research question stated evolved out of a review of the literature and identification of approaches and methodologies that were consistent with the goal of

this research. The remainder of this section focuses on providing a link between the proposed research questions and the literature.

Research question one (how can the study of instructional design theory and models inform the CoI framework) and research question two (what existing instructional design and development theories and models guide designers and instructors on implementing the CoI) evolved from a review of Tracey and Richey's (2007) construction of a Multiple Intelligence (MI) instructional design (ID) model. In their work, the authors wanted to incorporate aspects of the MI framework into an ID model. Tracey and Richey (2007) reviewed existing MI literature to determine what, if any, curriculum models supported instructors in the use of multiple intelligences in instruction. Following the example of Tracey and Richey (2007), the research design included a review of ID theories and models that potentially support the CoI and attempt to identify how existing ID theories and models can help to inform the CoI from the perspective of instructional strategies and activities.

To answer question three, (what instructional strategies and activities support the CoI framework), a similar interview approach to Visscher-Voerman and Gustafson (2004) was conducted. The authors sought to answer the question of "what design strategies do professional high-reputation designers use in practice in various training and education contexts" (Visscher-Voerman & Gustafson, 2004, p. 70). The authors used a development research approach in the form of a reconstructive case study. Through a series of interviews, Visscher-Voerman and Gustafson (2004) sought to identify "an overarching rationale that would help reduce, cluster, and describe the data in such a way

that both similarities and differences across design approaches could be interpreted" (p. 72).

Visscher-Voerman and Gustafson (2004) found that instructional designers frequently deviated from the activities and processes proposed by the traditional ADDIE (Analysis, Design, Development, Implementation, and Evaluation) framework. From their research, the authors were able to develop a framework to explain how designers approached the design of various instructional products. Similar to Visscher-Voerman and Gustafson (2004), this research focused on the processes used by professional designers in creating an online community of inquiry. As part of the interview process, questions were developed to identify instructional strategies and activities that are needed to guide practitioners in creating online communities of inquiry. In addition to the Guide and Job Aid, the CoI Design Framework was developed as a result of this research to guide practitioners in the design and development of an online community of inquiry through understanding their own experiences and how those experiences potentially impact the identification and selection of instructional strategies.

Answering the final research question, given the CoI framework, what instructional strategies and activities are needed to guide practitioners in creating online communities of inquiry, enabled the development and internal validation of the Community of Inquiry (CoI) Instructional Strategies and Activities Guide (Appendix A), Job Aid (Appendix B), and CoI Design Framework (contained within the Guide and Job Aid). Tracey (2009) validated the MI ID model developed through an internal validation process that resulted in a MI design model, examples, and explanations of instructional strategies. Similar to the process and approach used by Tracey (2009), the researcher

used professional designers in academia with backgrounds in the CoI to internally validate the Guide, Job Aid, and Design Framework identified and developed as a result of answering research questions one, two, and three.

The goal and research questions posed align with the outcomes of model studies mentioned by Richey and Klein (2007) who state that "model studies may generate new or enhanced models available for general use, but not all have such a comprehensive goal" (p. 13). This effort focused on the development and validation of elements of a design model in the form of instructional strategies and activities to support practitioners in the creation of online communities of inquiry.

The study included four phases to identify and validate instructional strategies and activities. A review of the literature to identify existing instructional strategies and activities was conducted, followed by phenomenological interviews with four expert practitioners. The expert practitioner interviews were conducted using Seidman's (2006) phenomenological interview framework. The series of three interviews were recorded and then transcribed. The transcripts were analyzed to determine instructional strategies and activities used by practitioners to inform the CoI as well as best practices in creating a community of inquiry. Using the instructional strategies culled from the review of the literature and the practitioner interviews, the Guide, Job Aid, and Design Framework were developed for practitioners to understand the impact of learning theory, instructional design theory, and life/design experiences to understand how the selection of instructional strategies and activities is influenced by each of these elements. The Guide and Job Aid were created for use by practitioners designing and developing courses using the CoI to support increased levels of social, cognitive, and teaching presence. The three

work products provide the context and background of the CoI and work together to provide practitioners guidance in creating an online community of inquiry. These products were validated by a three-person Delphi panel. The panel participated in three rounds of the Delphi study.

Relevance and Significance

The Community of Inquiry (CoI) framework is one of the more widely used frameworks supporting online learning effectiveness (Garrison & Arbaugh, 2007). The authors suggested future research should focus on instructional strategies that help guide learners through the inquiry cycle. Goertzen and Kristjansson (2007) identified the need for effective design of learning activities such as the design of tasks to support the interpersonal dimension of collaboration, which is related to the social presence component of the CoI framework. Design and facilitative strategies that support the teaching presence component of the CoI framework resulting in increased participation and learning have also been identified (Dubuclet, 2008; Richardson & Ice, 2010). These studies suggest the need for clearer direction regarding the selection and use of instructional strategies and activities within the Community of Inquiry (CoI) framework.

Richardson and Ice (2010) studied the incorporation of three instructional strategies: case-based discussion, debate, and open-ended (or topical) discussion in relation to each student's engagement and levels of critical thinking in online discussions. Using the Practical Inquiry Model (PIM), Richardson and Ice assessed the students' level of critical discourse and reflection. The authors found that students preferred open-ended discussions (47%) followed by debate discussions (36%) and finally case-based discussions (17%). In their analysis, Richardson and Ice (2010) found that that the

numbers of postings occurring at the integration stage of the PIM models differed from previous studies in which it was thought that most online discussions never extended beyond the exploration stage of the PIM model. The case-based strategy resulted in 78% of posts at the integration stage of the PIM with 77% for the debate strategy and 60% for the open-ended strategy. The achievements, as indicated by the percent of postings at each stage of the PIM model are contradictory in relationship to the students' preferences identified in the survey. For example, while 47% of students preferred open-ended questions, only 60% of the posts reached the integration stage of the PIM. Case-based discussions rated last in the student preferences at 17%; however, postings at the integration stage of the PIM for the case-based instructional strategy were highest at 77%. This demonstrates the difference between students' preference and the level of cognitive presence, as identified by the PIM stage, in the case of the three tested instructional strategies.

Akyol et al. (2009) described a mixed methods approach in studying the impact on the three presences through the development of a course delivered in online and blended formats. In this study, the authors used the CoI to design the course in order to reflect each of the three presences. The major assignments employed as part of the study included article critiques and peer reviews, nine weeks of online discussion, and prototype course redesigns. The study results showed a statistically significant difference in affective expression in the online experience and group cohesion was found more in the blended course. The level of cognitive presence exhibited the most frequently in both courses was integration; however, the integration levels achieved in the blended course were higher than the online course, and the online course demonstrated higher levels of

the exploration stage of the PIM. More importantly, there was a lack of messaging identified as design and organization (part of teaching presence). Not included in this study are data identifying the specific impacts of the "learning activities, strategies and assessment techniques…developed to reflect social, cognitive and teaching presence" (p. 1,835) that influenced the differences measured in each of the three presences.

Garrison and Cleveland-Innes (2005) studied the three approaches to learning – deep, surface, and achievement learning across four courses with a total of 75 participants. The authors found that interaction by itself does not foster or promote deep learning, and that the design and teaching approach influence how students approach their study. In one course, the "content and expectations (i.e., task demand) of the course simply did not require a deep approach" (Garrison & Cleveland-Innes, 2005, p. 141). In the course that was designed to encourage deep approaches to learning, the authors found a significant shift by students to a deep approach to learning. In their findings, Garrison and Cleveland-Innes (2005) suggest that there must be a "specific design goal and interaction facilitated and directed in a sustained manner if deep approaches to learning are to be achieved" (p. 141). As part of the design and in order to achieve deeper levels of learning, the instructor needs to establish a level of social presence. Social presence appeared to be directly associated with the extent and depth of the interaction (Garrison & Cleveland-Innes, 2005).

Social presence has been defined as "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). Akyol and Garrison (2011) also described social presence as "the learning climate through open

communication, cohesion and inter-personal relationships" (p. 185). The importance of social presence, satisfaction, and learning has been studied extensively. Social presence has been identified as supporting cognitive presence through the building of community in an online environment. Social presence enables the critical thinking process of discourse in asynchronous communication through the creation of an environment where discourse can take place safely (Garrison et al., 2000).

In a study of the relationship between social presence and satisfaction in online discussions and online class discussion satisfaction, Swan and Shih (2005) looked at social presence from the perspectives of both peers and instructors. In this study, one of the key findings was the correlation between high social presence and learning in which students who had higher perceptions of social presence indicated greater learning from other students (peers). Students who had lower perceived social presence attributed learning to their own efforts. This potentially indicates a stronger need to ensure that students are taught the importance of social presence and how to present "themselves online and the nature of online discussion might help particular students better adapt to the medium" (Swan & Shih, 2005, p. 131)

Examples in this section support the importance of the teaching presence components and the design of instruction. The studies also demonstrate the need to investigate how instructional design (ID) models, instructional strategies, and activities can inform the CoI and help practitioners create an online community of inquiry. Further research and validation of instructional strategies and activities support practitioners who design and develop instruction in an online learning environment using the CoI

framework. This should result in positive effects on the level of each of the three CoI presences – social, cognitive, and teaching.

Barriers and Issues

A number of barriers and issues associated with addressing the problem of providing practitioners insight into how to effectively design interactions that support the creation of the CoI environment and positively impact the levels of social, cognitive, and teaching presence existed. First, there were challenges associated with the qualitative research methods proposed in the research design. Challenges included the identification of experts to interview and participate in the Delphi panel to internally validate the work products. More detail regarding how the experts were selected and the interviews were conducted is provided in Chapter 3.

Second, the variability of the design processes used by practitioners presents issues related to creating work products that support a broader population of instructional designers. Instructional design models do not always reflect the way practitioners (i.e. instructional designers) see the world and how they design and develop curriculum (Visscher-Voerman & Gustafson, 2004; Yanchar, South, Williams, Allen, & Wilson, 2010). In a study of 24 professional designers, Visscher-Voerman and Gustafson (2004) found that most instructional designers deviate from the order proposed by the traditional ADDIE (Analysis, Design, Development, Implementation, and Evaluation) instructional design process. Based on a reconstructive case study using semi-structured interviews, Visscher-Voerman and Gustafson (2004) were able to develop a framework that helped to explain the differences in design approaches.

A more recent study of the way designers use learning and design theories was completed by Yanchar et al. (2010). The authors executed a qualitative research design using semi-structured interviews and identified three meta-themes that described the interaction between IDs and theory. Using theory resulted from participants stating that they do, to some degree, use learning and instructional design theories as they perform their work. IDs did not, however, endorse or use all aspects of the theories they used. IDs did find theory useful or could see how theory would be helpful in completing their work. Struggling with theory demonstrated the difficulty that practitioners in the field encountered when "using, attempting to use, or learning about formal theories" (Yanchar et al., 2010, p. 49). This meta-theme and the themes distilled from the interviews point to the challenges encountered by practitioners in implementing a theory. The authors also found that many theories are too abstract and academically focused to use completely in the designers' day-to-day work world. Intuition, craftwork, and theory use are similar to the findings of Visscher-Voerman and Gustafson (2004) in that practitioners do not frequently follow a standard design and development process. IDs typically adapt their design work to their unique situations, and while theory is useful it mostly informs and shapes intuition and skills that have been developed over time. Theory is not absolute or followed completely as part of the design process.

This variability in terms of how practitioners conduct design activities and the part that theory plays in the design decisions drives complexity in the research design (Visscher-Voerman & Gustafson, 2004; Yanchar et al., 2010). It was important to take these issues into account to ensure that the work products developed allow for practitioner flexibility in their use and provide a balance between prescription and

flexibility. This study aimed to provide practitioners with instructional strategies and activities that inform the CoI and provide flexibility for the designer in identifying and selecting instructional strategies that can be used as part of their design process. The balance was in providing enough structure without being so prescriptive that designers are not allowed to incorporate their own practices related to design.

Limitations and Delimitations

The following limitations and delimitations should guide future researchers who may want to replicate or extend this research:

Limitations

First, the selection of interview participants was to be a result of a nomination process. The reality was that the criteria had to be modified to identify an acceptable pool of potential interview candidates. Originally, a total number of eight participants were to be interviewed; however, the final number of expert designers interviewed was four. Seidman's (2006) recommendations regarding the number of participants were used in determining this number. Participants were also selected from a unique group of instructional designers who have a background in designing and developing using the CoI framework. While the CoI recently marked a ten-year anniversary of its publication, the number of potential participants with CoI backgrounds is limited compared to instructional design as a whole.

Second, during the validation of the work products in phase four, six experts were identified to participate in the Delphi panel. Through attrition, the number of experts participating in all three rounds of the Delphi study was three. The selection of these participants – experts in the fields of ID as well as in the CoI framework limits the

number of overall potential candidates for the panel. Should one or more of the Delphi panel participants drop from the study it was determined that the panel would continue as long as at least three of the original members agreed to continue participating in future rounds.

Third, in the research design, experts were identified as part of the semi-structured interview and for the Delphi study. In the case of the Delphi study, the literature points out that the definition of an expert is something that can be defined (Ritchie & Earnest, 1999) by the researcher. In the field of instructional design, there are no professional certifications or other designations that identify an instructional designer as an expert amongst peers. In order to mitigate this limitation, guiding criteria (see Chapter 3) for the interview participants and Delphi participants was used.

Delimitations

First, the CoI framework has been described as a constructivist collaborative framework (Garrison et al., 2000). In identifying existing instructional design models that could inform the CoI, only a small subset of primarily constructivist ID models were identified, none of which was directly linked to supporting the CoI.

Second, the focus on the development of instructional strategies and activities that inform the CoI is a subset of an overall design model which may lead to sub optimization. While this first step enables designers and developers to create a more effective CoI environment, it only provides insight into a small portion of the design process compared to the creation of a full-blown instructional design model and process.

Third, the focus of this study is on a graduate level (e.g., master's, doctoral) where portions of the instruction is delivered online using the CoI framework as a backdrop for the design and may not be applicable in other learning contexts.

Fourth, the target audience is practitioners who design instruction for graduate-level online learning environments at North American universities.

Acronyms

Analysis, Design, Development, Implementation, and Evaluation (ADDIE)

Cognitive Presence (CP)

Community of Inquiry (CoI)

Computer-Mediated Communication (CMC)

Computer-Mediated Communication Questionnaire (CMCQ)

Constructivist Learning Environment (CLE)

Design and Development (D&D)

Instructional Design (ID)

Instructional Design and Development (IDD)

Instructional Systems Design (ISD)

Online Learning Environment (OLE)

Problem-Based Learning (PBL)

Practical Inquiry Model (PIM)

Social Presence (SP)

Teaching Presence (TP)

Definition of Terms

The following terms are defined to provide clarity to the reader:

Cognitive Presence: Cognitive presence is defined in Garrison et al. (2000) as "…the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (p. 89).

Community of Inquiry: The Community of Inquiry (CoI) framework describes how learning takes place in an online learning environment through the educational transaction that occurs at the intersection of social, teaching, and cognitive presence (Garrison, Anderson, & Archer, 2000).

Computer-Mediated Communication: CMC has been defined as "both interactive, text-based modes and human to human communication via the World Wide Web" (Herring, 2004, p. 27).

Constructivism: Learning theory that focuses on how individuals build or create knowledge through their experiences. Constructivism focuses on how structures are built up including internal knowledge, memory, and knowledge structures (Phillips & Soltis, 1998).

Instructional Design Theory: Sometimes referred to as instructional theory, Instructional Design Theory explains how to help people learn and develop (Reigeluth, 1999).

Instructional Strategies: Refers to the plan developed for how to present the learning to the learners. Learning strategies are based on the learning theory employed, delivery medium, the content and learner characteristics (Dick et al., 2001).

Learning Theory: Learning theories describe how learning occurs in order to achieve desired outcomes and are descriptive in nature (Morrison, Ross, & Kemp, 2004; Reigeluth, 1999).

ID Practitioners: Individuals responsible for designing, developing, and implementing instruction for graduate-level courses.

Social Presence: Social presence is defined as "…the ability of participants in the community of inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as 'real people'" (Garrison et al., 2000, p. 89) and has been the presence studied most extensively (Garrison & Arbaugh, 2007).

Teaching Presence: Teaching presence focuses on the design of the educational experience as well as the facilitation and direct instruction of the learning experience (Garrison et al., 2000). Teaching presence is dictated to some extent by the design and facilitation of the experience.

Summary

Providing guidance for instructional designers using the CoI is an opportunity to further develop and promote the use of the CoI framework. It is important to address the issue of a lack of instructional design theory and specific CoI related resources so that seasoned practitioners of the CoI as well as novice designers can create an environment where the learner experiences a high-quality learning experience. A combination of methods was employed in this study to distill instructional strategies currently being used by practitioners through a literature review and semi-structured phenomenological interview process. The identification and aggregation of instructional strategies is the

first step of many to support ID practitioners who desire to increase their design competence while using the CoI framework.

A review of the literature supports the research design. The literature review included topics regarding the CoI as a valid framework, learning and instructional design theory comparison, the major activities of instructional design, the CoI framework, instructional strategies, their importance and implications for use in the CoI, a review of constructivist learning theory, model and instructional principles in the context of the role of the instructional designer, a review of constructivist instructional design models, frameworks and theories, and conceptual view of instructional strategies and activities that support the CoI. This broad spectrum of topics related to the CoI informed the study and is reviewed in the next section.

Chapter 2

Review of the Literature

Introduction

The literature review provides a foundation of knowledge that is used to explain and describe the current state of the CoI model. In addition, the review provides insight into the impact of current constructivist instructional design models, frameworks, and theory that could potentially inform the CoI. The final aspect of the literature review converges in an effort to bring together examples of instructional strategies and activities that can be used to inform ID in the creation of the CoI.

CoI Overview

Garrison et al. (2000) described the online learning educational experience as an interaction that takes place at the convergence of social, cognitive, and teaching presences. At the intersection of these presences is the educational experience where educational transactions (i.e., learning) occur. It was suggested by Garrison et al. (2000) that one could achieve successful learning experiences in an online learning environment through the interaction of these three presences, and early work was completed to identify indicators of each of the three presences.

Garrison et al. (2000) identified indicators of social, cognitive and teaching presence and then grouped those indicators that consisted of key words, phrases or synonyms into categories (refer to Table 1). To further understand each of the presences,

a discussion of each of the presences and synthesis of studies related to each presence follows this section.

Recently, teaching presence indicators were reviewed, assessed, and updated by Shea et al. (2010). The results of their study included the addition of new indicators based on research, the movement of several indicators from one category to another, and a new category for assessment. The value of the updated categories and indicators is that since the original work by Garrison et al. (2000) was completed, the CoI environment has evolved also with the improvements in technology. Garrison et al. (2000) stated that the original indicators were examples and would evolve over time.

Cognitive Presence

Cognitive presence is described as being the most basic to success in higher education CMC environments (Garrison et al., 2000). The authors define cognitive presence as "…the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (p. 89). Learners construct and confirm meaning as a part of the cognitive presence through sustained reflection and discourse (Garrison & Arbaugh, 2007). Recent studies have identified that social presence and teaching presence support cognitive presence, and that cognitive presence flows as a result of both social and cognitive presence being established in a discussion forum (Stein et al., 2007).

Cognitive presence is grounded in critical thinking literature (Garrison, Anderson, & Archer, 2001) and is considered both a process and an outcome. In terms of an outcome, Garrison et al. (2001) stated that from an individual perspective, critical

thinking is "the acquisition of deep and meaningful understanding as well as content-specific critical inquiry abilities, skills, and dispositions" (p. 8).

Garrison et al. (2001) use the PIM to operationalize cognitive presence. The PIM defines four phases that are used to describe and understand how learning (i.e., cognitive presence) occurs in an educational context (Garrison et al., 2001). These four phases include the triggering event, exploration, integration, and resolution. The PIM describes the process as to how the student constructs knowledge (Garrison et al., 2001) in an online learning environment. The work of Dewey heavily influenced the development of the PIM, particularly Dewey's "recognition of the shared and private worlds of the learner…in understanding the creation and support of cognitive presence for educational purposes" (p. 9). The authors describe the purpose of the PIM as a way to assess the quality of critical and reflective discourse as it occurs as part of a text-based environment.

Table 1: Community of Inquiry Coding Template*

Elements	Categories	Indicators (examples only)
Cognitive Presence	Triggering Event	Sense of Puzzlement
	Exploration	Information Exchange
	Integration	Connecting Ideas
	Resolution	Apply New Ideas
Social Presence	Emotional Expression	Emotions
	Open Communication	Risk-Free Expressions
	Group Cohesion	Encouraging Collaboration
Teaching Presence	Instructional Management	Defining and Initiating Discussion Topics
	Building Understanding	Sharing Personal Meaning
	Direct Instruction	Focusing Discussion

*Used with permission.

Vaughan and Garrison (2005) looked at the creation of cognitive presence in face-to-face and online discussions. The authors coded the discussions experienced in both the face-to-face and online portions of the blended learning experience for cognitive

presence in relation to the four stages of the PIM. The goal was to determine how a blended approach could support cognitive presence from the perspective of triggering events, exploration, integration, and resolution/application. The results were mixed with fewer triggering events in the online environment (8% to 13%), almost the same amount of exploration events in online versus face-to-face (61% to 60%) and a higher percentage of integration in online sessions (16% to 2%). In both the online learning and face-to-face formats, Vaughan and Garrison (2005) found an almost complete lack of examples of communication classified at the resolution phase of the PIM – 1% for online communication and 0% for face-to-face learning environments.

In studying the potential reasons for the low percentage at the resolution/application stage, the development coordinator identified inconsistent "effective direct teaching strategies, which would have moved the group forward to the resolution/application phase" (Vaughan & Garrison, 2005, p. 10). This lack of effective direct teaching strategies might imply the need for instructional design prescriptions aimed to facilitate the practical inquiry phases in a CMC. Research that could support improved measurement of direct instruction has been proposed by Shea and Bidjerano (2009) to more accurately reflect direct instruction. The authors propose five items: providing valuable analogies, offering useful illustrations, presenting helpful examples, conducting supportive demonstrations, and supplying clarifying explanations to more clearly measure the construct and impact of direct instruction.

Social Presence

Social presence is defined as "…the ability of participants in the community of inquiry to project their personal characteristics into the community, thereby presenting

themselves to the other participants as 'real people'" (Garrison et al., 2000, p. 89) and "the learning climate through open communication, cohesion and inter-personal relationships" (Akyol & Garrison, 2011, p. 185). Social presence has been the presence studied most extensively (Garrison & Arbaugh, 2007).

Social presence has also been identified as supporting cognitive presence through the building of community in an online environment. Social presence enables the critical thinking process of discourse in asynchronous communication through the creation of an environment where discourse can take place safely (Garrison et al., 2000). The authors adopted the concept of social presence as part of the CoI based on previous work of communications theorists (Daft & Lengel, 1986; Short, Williams, & Christie, 1976; Sproull & Kiesler, 1986).

With regard to discourse, Garrison et al. (2000) differentiate between collaborative and transactional types of messages that occur in a CoI. A collaborative message includes discourse, while transactional or simplistic types of messages are a simple process of downloading information. According to Garrison et al. (2000), the quality of the message in a true CoI is "questioning but engaging, expressive but responsive, skeptical but respectful, and challenging but supportive" (p. 96). The authors discuss the relationship between social presence and cognitive presence stating that when social presence is enhanced in the CMC, it can lead to increased levels of cognitive presence. A key point made by Garrison et al. (2000) is that this increase in cognitive presence through social presence occurs when appropriate teaching presence exists. These points describe the importance, connectedness, and integration between each of the three presences involved in the educational transaction. In addition, this example

reinforces the necessity of sound instructional strategies and activities to increase the levels of social presence.

Social presence is the most widely studied CoI presence (Garrison et al., 2000). Early in the development of the CoI, social presence was established. Three categories of responses by participants in an asynchronous discussion were identified as indicators of social presence - affective responses, interactive responses, and cohesive responses (Rourke, Anderson, Garrison, & Archer, 1999). The authors identified 12 indicators corresponding to one of the three social presence categories. Levels of social presence were identified and measured by the authors through the analysis of transcripts to test the efficacy of a tool for analyzing levels of social presence in the CoI.

Other research has looked at the learner characteristics that acted as predictors of social presence in online courses (Mykota & Duncan, 2007) and tried to determine if any individual learner characteristics could predict the degree of social presence experienced by participants. The authors emphasize the importance of instructors and designers in designing strategies and facilitating interactions that increase social presence. In addition, social presence indicators have been identified in a variety of CMC methods, including email and online group discussion formats (Lomicka & Lord, 2007) indicating the need to understand the impact of all forms of communication within a course on social presence.

A number of variables and factors have been found to impact social presence. Dow (2008) identified four factors affecting social presence associated with online interactivity, social context, and communication. Mykota and Duncan (2007) found that several variables were significantly correlated and act as predictors of social presence.

The variables impacting the levels of social presence include the number of online courses previously taken and self-rated computer-mediated proficiency. The authors recommend taking into account the experience of the target audience in CMC environments during the design process and suggest providing pre-course instructional activities and demonstrating how interaction is structured in online learning. These design strategies and activities, as one set of examples, could potentially be used as a component of an instructional design theory or model - in the form of instructional strategies and activities - that can be used to impact levels of social presence.

Tu et al. (2011) conducted a study using the Computer-Mediated Communication Questionnaire (CMCQ) in order to determine the impact of gender on social presence. The CMCQ measures four aspects of social presence: Social Context, Privacy, Interactivity, and Online Communication. Through the use of quantitative research design and analysis, gender was not identified as a predictor of social presence. Based on their work, the authors provide recommendations on communication strategies to impact social presence in CMC environments (listed in Table 2).

Teaching Presence

Teaching presence focuses on the design of the educational experience as well as the facilitation and direct instruction of the learning experience (Garrison et al., 2000). According to the authors, teaching presence is primarily the role of the teacher; however, participants or students can also fulfill aspects of teaching presence. Teaching presence is dictated to some extent by the design and facilitation of the learning experience. According to Shea and Bidjerano (2009), the instructor's ability to demonstrate teaching presence and develop social presence supports participants' ability to reach deeper levels

Table 2. Communication strategies to improve online social presence in CMC environments for both genders (Tu et al., 2011).

<table>
<tr><th></th><th>Male</th><th>Female</th></tr>
<tr><td rowspan="2">Social Relationship</td><td>• Suggest applying collaborate communication to build positive social relationships
• Suggest applying less direct, competitive, & dominate communication</td><td>• Encourage applying collaborate communication to build positive social relationships
• Encourage applying rapport building
• Allow ample time to build social relationship & decision making</td></tr>
<tr><td colspan="2">• Allow forming smaller groups
• Apply High Group Development Communication Style</td></tr>
<tr><td rowspan="2">Social Identity</td><td>• Encourage building social identities rather than individual identities</td><td>• Encourage building social identities rather than individual identities</td></tr>
<tr><td colspan="2">• Engage learners in group communications to facilitate self-perceptions and self-awareness to build shared identities</td></tr>
<tr><td rowspan="2">Online Communication</td><td>• Suggest applying figurative language</td><td>• Encourage applying figurative language</td></tr>
<tr><td colspan="2">• Encourage frequent communication exchanges</td></tr>
<tr><td rowspan="2">Interactivity (Communication Style)</td><td>• Apply more descriptive communication styles to express intended meaning</td><td>• Avoid any competitive activities, such as debate</td></tr>
<tr><td colspan="2">• Apply Stylistic Communication Styles
• Apply text-based feedback
• Apply storytelling style for posting</td></tr>
</table>

of inquiry as described in the PIM, allowing participants to develop higher levels of cognitive presence.

The strategies of pre-course instructional activities and recommendations described by Mykota and Duncan (2007) to increase social presence fall into two categories – pre-course activities and facilitation. These strategies parallel findings by Bangert (2009), who in building a validity argument for the CoI survey, identified that

teaching presence formed two distinct dimensions (sometimes referred to as factors or constructs): course design and organization and facilitation and direct instruction. Shea, Li, and Pickett (2006) found that connections were identified between the levels of teaching presence and the sense of learning community felt by students. Effective instructional design and organization were identified through the use of Rovai's (2002) Classroom Community Index at increasing participants' perceived learning and community.

Each of the studies about teaching presence identifies components that are valuable in the development of instructional strategies and activities that inform the CoI. These studies focus more on the measurement of one of the presences or the connection between presences as an output of teaching presence. The goal of the proposed research is to investigate how to design effective instruction using the constructivist CoI framework that results in increased levels of cognitive, social, and teaching presence.

CoI as a Valid Framework

Since the initial work by Garrison et al. (2000) on the CoI framework, one thread of research has focused on validating the CoI as a viable framework for CMC environments (Arbaugh et al., 2008; Bangert, 2009; Garrison, Cleveland-Innes, & Fung, 2010; Shea & Bidjerano, 2009). Early attempts to measure social, cognitive, or teaching presence focused on an analysis of content from threaded discussions (Garrison et al., 2001). As the framework evolved, a CoI survey was developed to measure each of the three presences. Studies have aimed to validate the CoI survey to measure social, cognitive, and teaching presence as well as the integration between each of the three presences. Garrison, Cleveland-Innes, and Fung (2010) confirmed the relationship

between the three presences and confirmed that the CoI survey instrument is a valid measure of the each of the three presences.

Arbaugh et al., (2008) administered the 34-item CoI instrument to 287 students across four institutions in Canada and the United States. The analysis conducted by the authors demonstrates that the CoI survey instrument is a valid measurement of the three presences. The data were subjected to a factor analysis using SPSS version 15.0. The results were used to verify the three subscale structures resulting from the 34 items comprising the CoI survey supporting the validity of the three elements of the CoI framework (teaching, social, and cognitive presence). According to the results, the three factors accounted for 61.3% of the total variance. Eigenvalues indicate a potential fourth factor; however, a scree plot indicated inconclusive results. The results suggest that teaching presence might be measuring two distinct constructs, and the authors suggest that the items used to measure teaching presence may need to be refined to support measurement of each of the constructs.

Shea and Bidjerano (2009) also experienced similar results related to teaching presence in a validation study of the CoI survey. The analysis of 2,159 student responses from a fully online learning network suggested modifications to the questions representing the teaching presence construct. The authors used principal axis factoring with Oblimin rotations while attempting a three and four factor solution. The Kaiser rule of eigenvalues greater than 1.0 and the scree plot indicated that the three factor solution was the best fit with the data. The 12 items comprising cognitive presence explained 50.63% of the variance. The 13 teaching presence items had loadings greater than .30, accounting for 9.63% of the variance while the nine items associated with social presence

explained 3.90% of the total variance. Shea and Bidjerano (2009) recommended distinguishing direct instruction from the other constructs of teaching presence - course design and organization as well as facilitation.

Bangert (2009) also validated the CoI three factor model through an analysis of 1,173 participants of both fully online and blended courses. Similar to Arbaugh et al. (2008) and Shea and Bidjerano (2009), Bangert's analysis identified a four factor solution. Items intended to measure teaching presence formed two constructs that were interpreted as course design and organization, and teaching presence comprised of both facilitation and direct instruction. Bangert (2009) used exploratory factor analysis to determine if the "underlying dimensions of the CoI survey were consistent with the proposed elements of the CoI model" (p. 107). The results demonstrated a four factor solution with the fourth factor's eigenvalue slightly greater than 1.0. Two of the three items comprising this factor crossloaded with what other research has identified as representing teaching presence. According to Bangert (2009), the factor loading of items representing the fourth factor were significantly smaller (> .200) than their factor loadings for the teaching presence factor.

During Bangert's (2009) second phase of the exploratory analysis, the items were constrained to a three factor solution, and the result was "a much more parsimonious and interpretable factor pattern consistent with the three proposed CoI model constructs" (p. 107). The three factors accounted for approximately 65% of the total item variance with cognitive presence comprising 52.2% of the total variance, teaching presence accounting for 8.47%, and social presence accounting 4.36% total variance, respectively. Bangert

then used Lisrel 8.72 to conduct a confirmatory factor analysis. The results of the confirmatory factor analysis found the data to be a superior fit to a three factor model.

Carlon et al. (2012) validated the CoI survey across three institutions in the health care discipline. The authors note that the focus of most research to date has been "general online education with a few studies in defined disciplines such as business and education" (p. 216). The sample included 38 online courses and a variety of disciplines in health care (e.g., Health Care Ethics, Introduction to Statistics, Anatomy and Physiology for HCA and HIM students, Physical Therapy Capstone). In their initial results, Carlon et al. (2012) found a third factor representing items 17-21 and a fourth factor represented by items 12-16 from the CoI survey. When the authors reran the principle axis factoring with extraction criteria of "3 factors" in order to compare to Shea and Bidjerano's 2009 study, the analysis confirmed the original factor structure of the CoI model. The authors then proceeded to compare the factors across disciplines. Using varimax rotation, the authors found that Social Presence yielded two factors described in this study as Social Experience and Social Comfort in Social Presence. The value of the study was in validating the CoI survey in four health-care disciplines, broadening the applicability of the survey in measuring the levels of each of the three presences.

While the studies mentioned measure elements of the CoI through the CoI Instrument, there exists little support for practitioners, for example, instructional designers and instructors, responsible for designing, developing, and delivering instruction within the CoI framework. One of the practical issues of the CoI research articulated by Garrison and Arbaugh (2007) includes "considerable room for future research from a practical and pedagogical perspective" (p. 168). For example, the

authors suggest that research regarding practical strategies and guidelines in how to best create social presence is needed.

Learning and Instructional Design Theory

According to Reigeluth (1999) learning theory describes how learning takes place and is descriptive in nature. There are a variety of learning theories that attempt to describe how learning takes place. Some of these learning theories include Plato and Locke's classical theories of recollection and blank tablet, respectively; behaviorism, problem solving, and insight; and constructivism, social constructivism, and cognitive learning theory (Phillips & Soltis, 1998). While learning theory describes how learning occurs, it does not provide designers and developers in the field with specific guidance on how to help people learn.

Reigeluth (1999) stated that instructional design theory is theory that includes "guidance on how to help people learn and develop" (p. 5) and focuses on describing methods (i.e., strategies) and situations in which to use these methods to better help people learn. According to Richey and Klein (2007), instructional design theory is primarily based on systems theory as well as learning, instruction, and communication theory. Instructional design theory includes all of the phases of instructional systems design (ISD) (Dick et al., 2001) and is design-oriented (Reigeluth, 1999) - focusing on the means to achieving a goal. According to Dick et al. (2001), ISD model components are based on theory and in most cases, research that validates the effectiveness of the ID model component.

Instructional design theory identifies situations in which methods of instruction can be used to support and facilitate learning (Reigeluth, 1999). Effective ID theories

and models are flexible and adaptable. This flexibility enables practitioners, such as instructional designers, to use the components that are valuable to them in the design and development of instructional content (Morrison et al., 2004).

Learning is an active process (Morrison et al., 2004) and well-designed instructional strategies allow the learner to make connections between the learner's previous knowledge and the new information. According to Dick et al. (2001), instructional strategies include content sequencing and clustering, learning component descriptions, and selection of instruction delivery systems. Similarly, Morrison et al. (2004) identified two levels of decision in the design of instruction. The first decision being delivery strategies, which are classified by the degree of individualization from the perspective of the learner. The second decision includes instructional strategies that focus on the methods or research-based prescriptions which are based on the content and the performance based on the learning objective (Morrison et al., 2004).

The Major Activities of Instructional Development

According to Gustafson and Branch (2002) terminology and the use of consistent terminology in the field of educational technology is one of the biggest challenges in the field of learning. The inconsistency of terminology includes confusion around the terms instructional development and instructional design. The authors settled on the term instructional development following a review of key literature. To further provide clarity on the definition of instructional development, the authors described at least five major activities associated with the instructional development process. As part of the evaluation of instructional development models described in the Chapter 3, the five major

activities of instructional development were used as criteria for selecting models to review. The five major activities of instructional development include:

1. Analysis of the setting and learner needs
2. Design of a set of specifications for an effective, efficient, and relevant learner environment
3. Development of all learner and management materials
4. Implementation of the resulting instruction
5. Both formative and summative evaluations of the results of the development

The CoI Framework and Elements of Instructional Design Theory

The CoI framework is identified as a constructivist approach to learning (Garrison & Arbaugh, 2007). Design of instruction as well as facilitation and direct instruction are identified as the components of teaching presence (Garrison et al., 2000). Studies have shown links between the components of teaching presence and other variables including student satisfaction and sense of community. Within these studies, however, the focus has been on identifying levels of social and cognitive presence attained, not specifically on how to effectively design interactions or use instructional strategies to affect the levels of social and cognitive presence. Redmond and Lock (2006) suggested further examination of the CoI framework "as a process to guide educators in their planning and facilitating of online collaborative learning experiences" (p. 275).

Shea and Bidjerano (2009) discussed the impact of the rapid growth of online learning which presents a number of challenges to educators surrounding technology and pedagogy. Their comments imply the need for additional research on how instructional strategies can be used to facilitate learning in a CMC environment and specifically, a CoI

environment. While many of the previously mentioned studies do not directly address instructional design from the perspective of the CoI framework, each of these studies plays a part in the creation of instructional strategies and activities that can be used to inform the CoI.

Existing studies provide insight or guidance into the implications for practitioners in the form of recommendations. For example, Mykota and Duncan (2007) mentioned the need for instructors and designers to shape effective communication for online learning. The authors do not, however, provide insight into the instructional strategies and activities that would support shaping effective communication. The authors also pointed to strategies that instructors and designers need to take including providing pre-course instructional activities to assist learners in becoming familiar with the technology and the use of that technology as well as guidance to designers and instructors to "facilitate and deliberately structure interaction patterns to overcome potential barriers to establish social presence" (Mykota & Duncan, 2007, p. 167). While this is another example of a potential strategy there is little guidance on the activities to support the strategy. The proposed research provides a framework that demonstrates the link between instructional strategies and the three presences in building the CoI.

There is currently a lack of a specific instructional design theory or a full instructional design model to inform the CoI. Because the CoI is a constructivist framework, research on constructivism can provide insight into creating a CoI. Huang (2002) identified constructivist approaches to learning in an online environment while other research-based suggestions for designing asynchronous, text-based computer conferences have been identified (Choitz & Lee, 2006). In addition, other research

provides insight into how to evaluate frameworks used in planning and sequencing e-learning student interactions (Bambara, Lambert, Andrews, & Harbour, 2006). These studies aided in shaping instructional strategies and activities that inform the CoI.

Instructional Strategies

Instructional strategies focus on how knowledge components are presented to the learner (Reigeluth, 1999) and are defined by Ross et al. (2007) as "prescribed sequences and methods of instruction to achieve a learning objective" (p. 717). According to Dick et al. (2001), instructional strategies "are used generally to cover the various aspects of sequencing and organizing the content, specifying learning activities, and deciding how to deliver the content and activities" (p. 184). The authors described four components of an instructional strategy which include:

- Content sequence and clustering
- Learning components of instructional strategies
- Student groupings
- Selection of media and delivery systems

Instructional strategies are determined by a number of factors including the content, learning objectives, performance indicators, and by the underlying learning theory (Ross et al., 2007). The authors gave examples of instructional strategies based on behaviorist learning theory (e.g., using reinforcement and active responding) and cognitive theory's emphasis on "fostering meaningful learning by associating new material with the learner's prior knowledge" (Ross et al., 2007, p. 721). The thought process of aligning instructional strategies to learning theories is similar to that of Gustafson and Branch's (2002) suggestion for increasing the potential for success in

creating effective learning environments through compatibility between learning theory and the ID model. Ross et al. (2007) did not include examples from a constructivist learning perspective.

The Importance of Instructional Strategies on the Community of Inquiry

One of the key reasons for this study is to provide guidance to instructional designers to make instructional strategy decisions in relation to developing a CoI. According to Woo and Reeves (2007) "instructional designers still lack sound theoretical foundations for determining what is good quality or meaningful interaction" (p. 16).

Christensen and Osguthorpe (2004) surveyed 113 ID practitioners regarding a series of design strategies they used for making instructional strategy decisions. The authors found that 86% of respondents used the design strategy of "brainstorming with other people involved in the project" either often or very often while 79% of respondents "compare the current situation to others in my experience and then adapt strategies that proved effective in similar cases." The third strategy used by practitioners (74%) used often or very often was "adapting and modifying useful instructional strategies I have seen others use". The least frequent strategy used (40%) was "I follow an existing instructional template already used successfully by others," was used either often or very often.

Christensen and Osguthorpe (2004) also studied the role of instructional design theory in making ID strategy decisions. They examined what theories were being used and how frequently a specific theory was being used. According to the results of 59 respondents (who were allowed to respond more than once), the following instructional-design theories mentioned by the respondents included:

1. Gagne: Gagne, Briggs, & Wager (n = 21)
2. M.D. Merrill: Component Display Theory; Pebble in a Pond Theory, etc. (n = 6)
3. Dick, Carey & Carey (n = 12)
4. Keller's ARCS Motivational Model (n = 10)
5. Instructional models: generic and ADDIE (n = 7)
6. Additional theories (n = 14)

Several of the least useful ID theories mentioned by respondents were constructivist ideals (n = 2) and Clark & Meyer: e-Learning (n = 2).

An interesting finding by Christensen and Osguthorpe (2004) of useful learning theories mentioned by 56 respondents (with the option for each participant to list more than one theory) showed that constructivism and social constructivism (n = 26) led the way with cognitive theories and instructional theories (n = 17) coming in second, motivational theories (n = 11), behaviorism, stimulus-response (S-R) theories (n = 10) and andragogy theories (n = 9) were mentioned by more than one respondent. Responses mentioned only once and not included in any of the previous categories were not listed.

It is interesting to compare the results of the most useful ID theories to the most useful learning theories. While constructivist ID theories finished among the least useful, constructivism and social constructivism learning theories finished at the top of the list mentioned by respondents. Respondents did not necessarily distinguish between ID and learning theory, often times blurring the lines between the two. In addition, practitioners seem to use the learning theories in the design and development of learning as often as they are using ID theories.

Constructivist Learning Environments

Jonassen and Rohrer-Murphy (1999) referred to a series of constructivist beliefs as a constructivist learning environment (CLE). The authors used examples and research from constructivist learning environments, open-ended learning environments, micro-worlds, anchored instruction, problem-based learning, and goal-based scenarios to describe the CLE.

Mayer (as cited in Reigeluth, 1999), discussed the implications for designing instruction for constructivist learning. Mayer pointed out that from a constructivist viewpoint, the learner is the sense maker while the facilitator acts as a guide "who provides guidance and modeling on authentic academic tasks" (Reigeluth, 1999, p. 144). The author also stated that it is the role of the instructional designer to create an environment where the learner is able to interact with the content or material and provide the learner with the ability to select, organize, and integrate the information provided. Kumar (2006) proposed that the role of the constructivist instructional designer is to ensure "that the learning progress of an immature learner to be systematically guided through an instructional sequence built upon a continuum of educative experiences" (p. 252).

A step towards providing more pragmatic support for instructional designers is through the use of constructivist instructional development guiding principles. A number of constructivist instructional principles have been defined based on a variety of established work by experts in constructivism. Huang (2002) suggested a number of instructional principles to support the design and facilitation of online learning. The principles aggregated from the literature by Huang (2002) include interactive learning,

collaborative learning, facilitating learning, authentic learning, learner-centered learning, and high-quality learning.

Jonassen and Rohrer-Murphy (1999) stated that "a problem with constructivism for instructional design has been that, while detailed conceptions and examples of the CLEs exist, less practical advice is available on how to construct them…" (p. 61). The authors argued that more is needed to support designers who are committed to the implementing CLEs and recommend they use activity theory as a basis for analyzing learning outcomes and designing CLEs that support the CLE principles. Similarly, the challenge according to Karagiorgi and Symeou (2005) is for IDs to translate constructivist philosophy into practice. The authors made an argument for IDs to take a more pragmatic approach through the use of moderate constructivism principles to design and develop learning. In addition, another major issue for the ID identified by Dick in Karagiorgi and Symeou (2005) is the issue of pre-specification of knowledge and accounting for the learner's entry-level skills and measuring competency.

Karagiorig and Symeou (2005) used three major phases of instructional design (analysis, development, and evaluation) as a way to articulate a constructivist perspective on an instructional design model. The authors described the development phase for an instructional designer as creating "instructional environments that are student-centered, student-directed, collaborative, supported with teacher scaffolding and authentic tasks and based on ideas of situated cognition, cognitive apprenticeship, anchored instruction and cooperative learning" (p. 19).

Karagiorig and Symeou (2005) discussed the challenges with designing in a constructivist environment and the importance of a pragmatic approach to constructivism.

According to the authors, one of the key issues surrounding constructivism is the ability to translate constructivist learning theory into practice. Fosnot (as cited in Karagiorg and Symeou, 2005) stated that constructivism is not yet a well-documented theory of teaching.

Review of ID Models, Frameworks, and Theories that Support Constructivist Learning

The selection criteria for a review of instructional development models include the five major activities associated with instructional development as identified by Gustafson and Branch (2002). Once the selection criteria are determined, the next step is to identify potential instructional development theories and models to evaluate against them.

In determining which models to review for this study, the following characteristics were used as a guide. First, a concerted effort was made to identify instructional development models that are constructivist in nature. According to Gustafson and Branch (2002), "The greater the compatibility between an ID model and its contextual, theoretical, philosophical, and phenomenological origins, the greater the potential is for success in constructing effective learning environments" (p. 16). Since the CoI framework has been defined as a constructivist framework (Garrison, 2007) the research attempted to identify ID theories and models grounded in constructivist theory. Second, the study also included instructional development models that are generic in nature but follow a similar set of criteria used by Gustafson and Branch (2002) in their survey of instructional development models. The selection criteria used by the authors included the historical significance of the model, its unique structure or perspective, or its

frequent citation in the literature. Last, components of an ISD model or theory were also evaluated if they were grounded or based on constructivist learning theory.

The following section expands on the models selected for review and intends to provide some depth regarding the model, framework, or theory. A brief rationale will be provided as to why the instructional model, framework, or theory was selected. Next, an overview will be provided and will include a short description with key process steps or concepts outlined. Descriptions of the environments in which the model, framework or theory was intended will be described next. If appropriate, the target audience will be included along with a brief discussion on the learning theory from which the model was derived.

Model for Designing Constructivist Learning Environments

The model for designing constructivist learning environments (CLEs) was chosen for review because it is defined as a constructivist learning model that engages learners in meaning making (Jonassen, 1999). At the center of the model for designing CLEs is a problem, question, or project. The author describes that at the center of the model, the problem context - three integrated components need to be included: the problem context, the problem representation or simulation, and the problem manipulation space. The interpretive and intellectual support systems form concentric circles around the problem / project center and expand outward to include: related cases, information resources, cognitive tools, conversation or collaboration tools, and social or contextual support.

Instructional Transaction Theory (ITT)

This theory was chosen because it has been identified as supporting IDs in the creation of a CLE as a way to analyze needs, tasks, and outcomes (Jonassen & Rohrer-

Murphy, 1999). The authors state that activity theory has its roots in the philosophy of Kant and Hegel emphasizing the two dimensions of the historical development of ideas and the active and constructive role of humans. One of the key aspects of activity theory mentioned by Jonassen and Rohrer-Murphy (1999) is that "conscious learning emerges from activity (performance), not as a precursor to it" (p. 62).

Jonassen and Rohrer-Murphey (1999) recommended the use of the activity system to analyze human activity including their goals and intentions, objects or products resulting from the activity, the rules and norms that surround the activity, and the larger community where the activity occurs. The activity system is composed of three elements: subject, object, and tools.

Integrated Framework of Constructivist-Based Curricula Design

This framework created by Kumar (2006) is built on the conceptual ideas of Nickols' framework for thinking about knowledge. Anderson's (as cited in Kumar, 2006) categorization of two types of knowledge included declarative or factual knowledge and procedural knowledge (i.e., how a person does something). Kumar expanded on Nickols' framework by including the identification of two types of declarative knowledge (basic and connected/extended factual knowledge) along with procedural knowledge. Flowing from the two types of declarative and procedural knowledge, Kumar links specific instructional strategies to each type of knowledge to complete the framework. Kumar (2006) suggested that immature learners can be "systematically guided through an instructional sequence built upon a continuum of educative experiences" (p. 252). The author also stated that the acquisition of declarative

knowledge when acted on through a set of actions is transformed into procedural knowledge.

In addition to describing a constructivist framework, Kumar (2006) provided examples of instructional strategies that could be used in constructivist environments using a pedagogical approach to creating curriculum. Examples of instructional strategies include varied practice, spaced reviews, problem solving, and cognitive apprenticeships.

Online Collaborative Learning Framework

The Online Collaborative Learning Framework described by Redmond and Lock (2006) was selected because it is a framework adapted from the CoI framework from the perspective of collaborative telecollaboration environment. The framework uses each of the three presences (social, cognitive, and teaching) defined by Garrison et al. (2000); however, the authors overlay the modified CoI framework with a seven-phase process for design.

The seven-phase process begins with fostering social presence to create an environment in which participants and educators feel safe to enter into critical discourse. The next phase involves creating and sustaining a learning community. This part of the process is at the intersection of the social and teaching presence components and is described by Redmond and Lock (2006) as the place where the participants "must see themselves as both individuals and as an active participant in the learning community" (p. 271). Strategies suggested by the authors at this stage include "get-to-know-you" activities (e.g., posting personal information, images, and artifacts).

Redmond and Lock (2006) described the third phase of the process as developing and maintaining teaching presence. The authors suggested that design and organization of the course focus on designing for authentic communication through a problem context. The first recommendation is to find experts to assist with facilitation of the learning experience. The second suggestion, if more than one class is involved, is to consider providing liaisons for each section who are familiar with motivational skills and Information and Communication Technology (ICT) skills. From an ID perspective, the authors described three factors in the design and development of teaching presence that need to be addressed: time for flexibility and access to experts and appropriate resources, the development of the educators and others' social presence and the planning of activities to extend the collaborative nature of the learning experience, and consideration for pre- and post-activities.

The fourth phase in the process is scaffolding learning, which occurs at the interaction of teaching and cognitive presence. It is at this intersection where students achieve deep learning through cognitive activities. The authors use the PIM (Garrison et al., 2000) as part of the original CoI framework to guide the learner beyond social interaction with other learners, educators, content, and experts to deeper levels of cognitive activity.

The fifth phase is exploring cognitive presence. The focus for this phase is the exploration phase of the PIM. The problem space is explored through a variety of potential activities in an effort for the learner to seek and acquire critical information. This phase emphasizes critical thinking from the dual perspective of process and product.

Advice for designers includes “designing learning experiences to ensure there is scaffolding for the development of critical thinking” (p. 273).

The sixth phase is at the intersection of social and cognitive presence where learners participate in critical discourse. It is at this stage that learners move beyond the simple exchange of information to higher levels of critical thinking. The authors provided guidance to IDs by suggesting that they take a look at the types of communication modes to use (e.g., text, video, audio conferencing, or asynchronous methods of communication).

The final phase is knowledge in action. The authors claimed that this phase represents the final stage of the PIM model (resolution) and the deepest levels of learning. Recommendations for IDs include leaving a legacy for others in the form of learners sharing their knowledge with future learners or providing the opportunity for participants to reflect on the learning experience.

Guidelines for Online Problem-Based Learning (PBL)

Guidelines for Online Problem-Based Learning was selected due to the centrality of the problem context in many constructivist models (Jonassen, 2000). In addition, a number of constructivist learning strategies call for incorporating problem-based learning as part of the learning environment. An and Reigeluth (2008) articulated the issue with implementing Problem-Based Learning (PBL) in online learning environments by stating that there is currently insufficient guidance for designing and implementing PBL, and the literature that exists focuses primarily on face-to-face environments.

An and Reigeluth (2008) proposed a number of guidelines for developing PBL. The first guideline includes using PBL for part of a course. PBL is time consuming and

is used with other strategies. Another strategy is to select problems that are relevant to students' current or future careers. The more relevant the problem, the more participants will be engaged. In addition, when using PBL, consider the following: the number of solutions, problem context and structure, and the available time to create a more effective PBL environment. The nature of the problem and communication is another identified strategy by the authors which has implications on the optimal group size. Ensuring sufficient pre requisite knowledge is another strategy. Too little knowledge can result in student frustration. The authors also recommended evaluating the process of learning as well as the end product of the learning. Designers and facilitators should also consider providing both synchronous and asynchronous communication mechanisms. The goal of the PBL is for students to collaborate. To that end, the authors recommended dividing up the tasks to support a collaborative environment. The final guidelines include providing tailored instruction or cognitive scaffolding opportunities for learning after problem solving. While these guidelines were developed by reviewing a limited subset of graduate level courses in the technology and library science fields, the findings provide insight for designers and instructors who wish to create PBL.

Implementing a Constructivist Approach – Issues to Consider

Huang (2002) identified seven issues to consider when implementing a constructivist approach with adults in online learning environments. As the proposed research on instructional strategies and activities that inform the CoI progresses, it is important to keep these issues in mind. The seven issues can be used as a guide to help practitioners determine if a particular instructional strategy or activity will work within a given context.

First, by nature, online learning can lose some humanity and isolate the learner. Key to avoiding isolation is the construction of the online environment to ensure interaction between students and instructor and supporting the use of technology in those interactions. It is important to ensure that there is balance between the use of technology and the social elements of the online environment.

Second, "distance learners should determine the quality and authenticity of their learning" (Huang, 2002, p. 31). Designers and facilitators need to ensure that the interaction created is meaningful and relevant to the topic being discussed. The facilitator needs to focus on ensuring an environment where learner responses are relevant to the learning.

Third is an issue relating to the "real role of educators (instructors) in distance learning" (Huang, 2002, p. 31). The online learning environment is substantially different for the instructor to manage when compared to the traditional classroom. The instructor can take a number of roles throughout the learning process (e.g., guide, resource, facilitator) as the learner moves towards owning and controlling his or her learning.

Fourth, "pre-authentication is a controversy in the constructivist approach" (Huang, 2002, p. 31). Constructivism's belief in making the learning as close as possible to the real world is more challenging as part of an online learning environment. It is important for the instructor to make the learning as relevant and close to the real world as possible, and when it is not possible, provide the context for the learner to make the association from the online environment to the real world environment.

Fifth, “evaluation of learners’ achievement is time consuming” (Huang, 2002, p. 32). Constructivism focuses as much on the process of learning as it does the end result. In addition, constructivism states that the learning outcome should be based on each learner’s unique situation. Evaluating learner achievement would be challenging if the constructivist view were taken literally as there would be no common baseline or way to evaluate a class according to a common set of criteria.

Sixth, “constructivists emphasize that teaching and learning should be learner-centered” (Huang, 2002, p. 32). The challenge for the instructor is to develop individualized curriculum for each learner. Technology may support providing more focused and custom or relevant curriculum for each learner that could support the learner’s unique learning style.

Seventh, “collaborative learning is in conflict with individual differences” (Huang, 2002, p. 32). Adult learning emphasizes instruction based on each learner (learner-centered). Social constructivists believe that collaboration and social interaction provides the backdrop for learning to occur. The challenge for the instructor is to balance the individual learner’s needs in a collaborative environment.

Summary

Chapter 2 included an overview of the CoI, including a discussion of each of the three presences- cognitive, social, and teaching. The chapter also included information on the CoI as a valid framework and the instruments used to both validate the framework and to measure each of the three presences. A review of ID models, frameworks, and theories that could potentially inform the CoI was presented along with issues to consider when implementing a constructivist environment. Using the insights gathered from

Chapter 2, the methods used to identify instructional strategies and activities are detailed in Chapter 3.

Chapter 3

Methodology

Overview of Design and Development Research

Design and development (D&D) research is the "systematic study of design, development and evaluation processes with the aim of establishing an empirical basis for the creation of instructional and non-instructional products and tools and new or enhanced models that govern their development" (Richey & Klein, 2007, p. 1). The authors extended the original concept of design and development research to include both instructional and non-instructional interventions including products, tools, and models.

The development of the Community of Inquiry (CoI) Instructional Strategies and Activities Guide, Job Aid, and the Design Framework to support practitioners in the creation of a CoI is considered D&D research and falls into two clusters of D&D research described by Richey and Klein (2007) – model research and product and tool research. A variety of qualitative methods were used to answer the research questions and achieve the research goal.

Richey and Klein (2007) stated that model research can include the development of new models or enhancements to existing models. The authors also noted that some model studies do not have as extensive a goal as the development of a new model or an enhancement to an existing model and may focus on specific aspects or processes of a

model. The D&D model research component focused on the identification of instructional strategies to support the creation of a CoI. Focusing on the instructional strategies component of the instructional model fits within the parameters of model research described by Richey and Klein (2007).

The goal was to provide instructional strategies and activities that practitioners can use to create a community of inquiry in an online learning environment. Identifying appropriate instructional strategies and activities allows instructional designers and developers to design instruction that supports increased levels of social, cognitive, and teaching presence. Instructional strategies and activities are identified as one of the six major components or elements of design and development (Richey & Klein, 2007). The other five elements include: learners and how they learn, the context in which learning and performance occur, the nature of content and how it is sequenced, the media and delivery systems used, and the designers themselves and the processes they use.

Research Design

The intent of the research design for identifying instructional strategies and activities that inform the CoI is to provide flexibility through each of the research phases. As Richey and Klein (2007) stated the following:

> A research design establishes the general framework of a study, addressing each phase of the investigative process. However, researchers design their studies and then implement these designs with flexibility as they respond to situations that arise as the projects progress. (p. 36).

The research design includes a number of qualitative methods. The challenge with qualitative methods is that there "are no explicit, guaranteed recipes to follow for

pulling together a coherent, convincing, winning research proposal" (Marshall & Rossman, 1989, p. 11). The authors suggested that through thorough reviews of the literature, the researcher is able to make more sound decisions on the specific methodologies used as part of the research design. In addition to the methodologies described in literature, Marshall and Rossman (1989) stated that the decisions related to methodology also must be derived from the research questions and the supporting framework.

In order to achieve the proposed research goal, a multi-phase approach was followed and included 1) the identification of existing learning and instructional theories and models as well as existing instructional strategies and activities, 2) semi-structured phenomenological interviews, 3) the creation of the work products (i.e., Guide, Job Aid, and Design Framework), and 4) the internal validation of the model and work products through a Delphi study (see Table 3 for a summary of these steps). A summary of each phase follows and more detail is described later in this chapter. As this study involved the participation of human subjects, approval from Nova Southeastern University's Institutional Review Board (IRB) was acquired prior to engaging the study's participants (Appendix C).

The research design incorporates similar aspects of a process used by Hung, Smith, Harris, and Lockard (2010). The authors developed a behavioral management techniques Performance Support System (PSS) to help prevent problems in the classroom and manage problem situations for elementary school teachers. The process they followed demonstrated flexibility in the creation of the performance support system and mirrors many of the same aspects of this research design.

Using Richey and Klein's (2007) D&D framework, Hung et al. (2010) completed four phases in the development and validation of the performance support system. The initial steps included defining a design problem which was then followed up with an extensive review of the literature. The result of these first two steps was a "set of possible design and development solutions" (p. 62). The authors documented the systems development process and then developed the instructional system using an internal validation technique composed of individuals representing the targeted user population. The research design follows similar steps to Hung et al. (2010) beginning with a thorough review of the literature to identify existing learning and instructional design theories for instructional strategies and activities that inform the CoI.

Phase 1: The Literature Review

The CoI is described as a constructivist framework for graduate level education (Garrison et al., 2000) and more recently as being social-constructivist in nature (Swan & Ice, 2010). According to Richey and Klein (2007), learning theory and instructional theory are typically intertwined. This link would suggest that a primary focus should be on identifying existing constructivist theories, models, and strategies for instructional strategies and activities that could potentially inform the CoI. The literature related to constructivist learning theory is expansive. There is little guidance for the practitioner from the perspective of a comprehensive instructional design theory that supports the CoI. A minimum of five instructional design models or frameworks were reviewed for potential instructional strategies and activities that can be used to support the creation of the CoI. The models to be reviewed include the model for designing constructivist

Table 3: Research Purposes, Participants, Methods, and Instruments by Phase

Phase	Purpose	Participants	Methods
1. Literature Review	Identified existing instructional design theories and models for instructional strategies and activities.	Researcher	Literature Review
2. Instructional Design Practitioner Interviews	Identified and distilled instructional strategies and activities used by academic practitioners in the design and development of courses using the CoI framework.	Expert Designers (N=4)	Semi-structured interviews
3. Development of design framework and tools	Convert research findings from the literature review and interviews into a functional prototype that is representative of the final outputs. This includes the Design Framework that can be used in understanding the selection of instructional strategies, a Guide that can be used by practitioners designing and developing courses using the CoI, and a Job Aid that also supports the practitioner in the design of his or her courses to support increased levels of social, cognitive, and teaching presence.	Researcher	
4. Validation of framework and tools	Validation of the outputs: Guide, Job Aid, and Design Framework supporting the selection of instructional strategies and the creation of a community of inquiry.	Subject Matter Experts (N=3)	Three sessions of expert review and appraisal using a Delphi approach

learning environments, instructional transaction theory, integrated framework of constructivist-based curricula design, and guidelines for online PBL.

The purpose of this initial phase was twofold. First, it was important to complete an in-depth analysis of the current literature and assess existing instructional models and theories that could be useful in supporting practitioners in the design and development of online learning using the CoI framework. Second, it was important to leverage the work of others to identify constructivist instructional strategies and activities and evaluate their applicability to the CoI.

To support answering research questions one through three, a similar approach to the work of Tracey and Richey (2007) was conducted. The initial steps of the proposed research were to create and use a set of criteria related to the CoI framework to identify existing instructional design theories and models that support the CoI framework. Existing instructional design theories were analyzed to identify instructional strategies and activities that could potentially inform the creation of the CoI.

Richey and Klein (2007) discussed the intertwined nature of learning theory and instructional design theory, and that often the two are difficult to look at independently. The CoI has been described as a constructivist framework, and one of the key criteria to be used in the identification of existing instructional design theories is that they were described as constructivist in nature. The criteria for selecting ID models as part of the literature review can be found in Table 4.

In addition to the review of existing instructional design theories and models, a comprehensive review of existing CoI and online learning environments (OLE) studies was conducted to identify instructional strategies and activities. Studies selected were

based on the same criteria established for the review of instructional design theories and models. The main difference in this part of the approach is that the studies were not intended to reflect a full instructional design theory or model. The studies did, however, provide insight into potential instructional strategies and activities.

Table 4: Criteria for ID Model Literature Review

- Described primarily as a constructivist ID theory
- Can include learning theory
- Has been published in a refereed journal within the last 10 years

Phase 2: Instructional Design Practitioner Interviews

Phase two entailed interviews with instructional design practitioners who were actively designing and developing learning using the CoI framework in an online learning environment. This process was similar to the interview component of a reconstructive case study approach conducted by Visscher-Voerman and Gustafson (2004) as well as a semi-structured interview process used by Yanchar et al. (2010). Richey and Klein (2007) described the importance of interviewing practitioners in terms of identifying the problems they see in the design and development process. Interviews were used to identify the strategies used by experts to help create the CoI.

In their work, Visscher-Voerman and Gustafson (2004) interviewed four designers for each of the six design settings; a total of 24 interviews during the first phase of their reconstructive case study. According to the authors, the "number was assumed to be large enough to cover likely variety across designers and small enough to keep the study feasible" (p. 71). Following a similar format, Yanchar et al. (2010) used semi-structured interviews with seven participants to identify three meta-themes and ten

themes on designers' view and use of learning and instructional theory. Both studies demonstrate the ability to use a qualitative research design, specifically semi-structured interviews with smaller numbers of participants while maintaining the integrity of the research process.

The purpose of the interviews was similar to the work of Yanchar et al. (2010). In their research, the authors identified how designers use learning and design theories in their day-to-day work. It was important to analyze what instructional strategies and activities designers who design for the CoI use and why they use these particular strategies and activities. While the results of the in-depth literature review and analysis of constructivist learning and design theory in phase one was useful in culling useful instructional strategies and activities, it was important to learn from practitioners in the field how theory and practice converge and how design theory supports design and development within the CoI framework. This phase also supported the development of the work products because it provided useful insight into what the experts found useful for those practitioners looking to use the CoI framework in the design and development of their courses.

The interviews included practitioners who currently design and develop their online courses using the CoI as their framework. The interviews were completed with four experienced, professional instructional designers, three of whom had extensive knowledge of the CoI framework. An initial series of interviews was conducted with one of the participants to pilot the interview protocol, process, and questions to learn from and ensure the interview process captured the intended data needed for the next phase of

the research design. Interviews were used to distill instructional strategies and activities that practitioners currently use to create the CoI.

The semi-structured interview using Seidman's (2006) three-series phenomenological interviewing methodology was selected for a number of reasons. Flexibility, the ability to probe or follow up and explain questions and explore responses to questions, the ability to record and transcribe for analysis, and the high return rate are advantages of using the interview method (Gay, Mills, & Airasian, 2009; Seidman, 2006). As is the case with any research method, there are also drawbacks to the interview method including the fact that interviews are "time consuming, no anonymity, potential for interviewer bias, complex scoring of unstructured items [and] administrators must be trained." (Gay et al., 2009, p. 183). In order to be able support answering research question two, "What existing instructional design and development theories and models guide designers and instructors on implementing the CoI framework?" and research question three, "What instructional strategies and activities support the CoI framework?" the phenomenological interview method was selected.

Seidman (2006) recommended a three-series interview process as part of the phenomenological interview process, with each interview building on the previous. Prior to conducting the interviews, a pilot interview is recommended. Piloting the interview with a small number of participants allows the researcher to become familiar with the interviewing process and to learn from the pilot experience. Once the pilot experience is complete, it enables the researcher to reflect and revise the approach based on the experience. Upon completion of the pilot, the researcher is then ready to conduct additional interviews with the remaining participants.

Seidman (2006) stated the first round of interviews is focused on the experience of the participant in relation to both the context of the participants experience and the topic. The second round of interviews focused on the details of the topic being studied through the process of reconstructing their experience. The final interview round focused on reflection and making meaning. Seidman (2006) emphasized the importance of adhering to the three rounds and the specific focus of each round. The urge to move from the focus on interview one to the questions and topics of interview two must be resisted, and the purpose of each round of interviews needs to be respected and completed prior to moving onto the next round.

There were three rounds of interviews conducted in this study with each practitioner participating in each round. The first round focused on understanding the participants' background, work experiences, and practical involvement in the design process including their thoughts on learning and instructional theory to support answering research question two. Round one focused on how participants became designers and developers using the CoI as the framework by which they design. Seidman (2006) stated the second interview should focus on the participants' present experience. In this case, the second interview round focused on the identification and details as to the selection of instructional strategies and activities to create the CoI. Questions were designed to elicit the experts experience in the design and development of courses from the perspective of the instructional strategies and activities used to support the CoI in support of research question three. The third round of interviews focused on reflection and making meaning (Seidman, 2006) in the context of the two previous interviews, and it "addresses the intellectual and emotional connection between the participants' work and life" (p. 18).

Upon completion of the three interview rounds with each of the four participants, the data were transcribed and analyzed to identify key themes in participants' responses as well as to categorize specific instructional strategies and activities that are uncovered as part of the interview process. Table 5 provides a high-level summary of each of the steps that were conducted as part of the interview phase.

Seidman (2006) identified a number of key protocols to be followed during the phenomenological interview process, including the length of the interviews. The author recommended a series of three 90-minute interviews. As described previously, each of the interviews had a purpose, and each interview built off of the previous interview. In determining the length of the interviews, Seidman stated a lack of literature exists regarding the length of time interviews should take. Through the literature and the author's own experience, one hour does not provide the appropriate amount of time, and two hours is typically too much to ask of a participant. Seidman recommended one hour and a half to provide an amount of time that allows participants to reconstruct their experience.

Communication with participants is another critical protocol to establish (Seidman, 2006). Prior to selection as a participant in the study, an initial contact email was sent to each participant. The purpose for the contact email was to provide participants with an overview of the study, his or her role in the study, a brief discussion of what to expect in the consent forms, when he or she would receive the consent form, and other preliminary details regarding the interview. Seidman (2006) recommended creating a participant form that aids in facilitating communication and documents

information regarding each participant "that will inform the final choice of participants and the reporting on the data later in the study" (p. 49).

There are guidelines established by Seidman (2006) regarding the spacing of the interviews. Three days to a week are recommended in terms of the spacing of each of the three interviews resulting in a timeframe of approximately three weeks for the series of three interviews. According to Seidman (2006), there are a number of reasons for the spacing of interviews. The author stated that for interviews that span too much time, the connection between interviews can be lost while the space between interviews allows participants to be able to reflect on the previous interviews.

The number of participants to be interviewed is another area in which there are many differing opinions. Seidman (2006) identified two criteria in determining the number of participants to interview. The first criterion focuses on being able to sufficiently gather a representative amount of data in order to draw conclusions. The author used the term sufficiency to reflect the point at which the information from any number of participants allows for the researcher to connect experiences of those participating with those not participating. The second criterion is saturation: the point at which the researcher begins to hear the same information over and over again.

In determining the number of participants, a second dynamic was considered – that being the qualitative research design. Marshall and Rossman (1989) suggested that the literature has much to say about the decisions one makes in a qualitative research design. In this case, the works of Visscher-Voerman and Gustafson (2004) and Yanchar et al. (2010) play a significant role in determining the number of participants. Visscher-Voerman and Gustafson (2004) studied designers from the perspective of six different

design settings. The authors interviewed four designers for each category, for a total of 24 interviews. Hung et al. (2010) identified seven participants to interview regarding views and uses of conception tools in design work. Based on the literature, a total of four participants were interviewed.

Transcription of the entire interview is another key protocol that was followed (Seidman, 2006). Although there are other methods, including review of the audio tapes for key themes, Seidman recommended transcribing the entire interview. In order to analyze the data, the audio from the interviews was transcribed using a third party.

Richey and Klein (2007) stated that one of the key differences between design and development research versus teaching-learning research is the type of participants identified as part of the study. In design and development research, the authors pointed to the use of individuals associated with the design and development process. Seidman (2006) stated one of the most important criterion for selection is that a participant's experience aligns with the study. To support the identification of instructional strategies and activities that inform the CoI, a series of interviews with a minimum of four expert designers in higher education were conducted. These practitioners were selected based on criteria central to the purpose of this study, including their experience in the design and development process and being actively involved in the design and development process with a focus on the CoI framework.

Similar to Tracey and Richey (2007), a nomination process occurred by polling professors who have published articles on the CoI for potential interview candidates. The nomination of instructional designers and developers was guided by the series of criteria in Table 6.

Table 5: Summary of Steps for Interviewing Practitioners

Step	Description	Anticipated Outcome
1	Develop interview protocol and questions to gather data in support of the research questions.	Interview protocol and questions.
2	Develop criterion and protocol for the selection of expert practitioners.	Criteria for identifying practitioners.
3	Validate interview protocol, questions and practitioner selection criteria.	Validation of the interview protocol, questions, and practitioner criteria.
4	Identify expert practitioners to interview.	List of eight experts to interview.
5	Contact session with participants.	Provide an overview of the study, their role, and what to expect.
6	Pilot interviews with one practitioner.	Revised interview questions based on pilot experience and feedback.
7	Practitioner Interviews: Interview #1	Interview data regarding learning and instructional theory background, implications on how this impacts D&D using the CoI framework collected from six practitioners in support of research question 2.
8	Practitioner Interviews: Interview #2	Interview data collection regarding instructional strategies in support of research question 3.
9	Practitioner Interviews: Interview #3	Making meaning – focusing on understanding and making meaning of their experience through the context of the first two interviews. This will support research questions 2 and 3.
10	Analyze the data.	Analyze and synthesize the data into a report.

Table 6: Practitioner Selection Criteria

Item	Criterion
1	You have a minimum of five years of instructional design (ID) experience
2	You have at least three years of experience designing learning in an asynchronous environment and are actively designing and developing curriculum for online learning environments in a graduate setting in North America .
3	You are familiar with the CoI framework and how each of the three presences supports the educational transaction

Prior to the pilot interview, an internal review of the interview protocol was conducted by the researcher's dissertation chair and the Institutional Review Board of Nova Southeastern University. The research design outlines a number of methods for identifying instructional strategies that can be used to inform the CoI. Semi-structured phenomenological interviews were conducted with practitioners who have a background in the CoI and who are currently designing and developing online instruction to create a CoI. These interviews were conducted to identify specific instructional strategies that these practitioners use to establish cognitive, social, and teaching presence. The nature of semi-structured interviews in a qualitative research design allows for flexibility, and that flexibility can inherently impact the validity of the interviews.

According to Gay and Airasian (2003), the two primary threats to the validity of interview studies include observer bias and observer effect. They stated observer bias relates to the background of the researcher and what he or she brings to the interview that could potentially impact what is observed, which could negatively impact the results and interpretations of observation. The challenge for the researcher is to be involved and unbiased. The dynamic is between the higher levels of involvement with participants, offering the opportunity for greater insight and subjectivity. This level of involvement

increases the chance for greater subjectivity on the part of the researcher. Observer effect is defined as the impact on participants' behavior because they are being observed (Gay & Airasian, 2003). This is sometimes referred to as the halo effect.

In order to increase the validity of the interview phase, Seidman's (2006) three-interview structure supports validity by "placing participants' comments in context" (p. 24). In addition, structuring a series of three interviews over the course of one to three weeks allows the researcher to identify inconsistencies between interviews (Seidman, 2006). The author also posited that the structure and flow of the interview, moving from a defined life history interview through the details of the experience, allows participants to reflect on the meaning of their interviews and supports the validity of the phenomenological interview methodology. Gay and Airasian (2003) also pointed to a number of strategies to enhance validity to reduce researcher bias and improve data validity. Examples of some of these strategies include tape recording interviews to ensure that the interview has captured comments and responses verbatim, building trust with participants, recognizing one's own bias and journaling "one's own reflections, concerns, and uncertainties during the study and refer to them when examining the data collected" (Gay & Airasian, 2003, p. 215).

Other issues could be around the discussion of what characteristics constitute an expert. Experts were used both as part of the interview process as well as for the expert Delphi panel used to internally validate the work products. As part of the process of identifying experts, a similar process outlined by Richey and Klein (2007) was followed in the selection of participants in the study. Richey and Klein (2007) outlined areas to focus on when selecting participants including setting selection, participant selection, and

ethical considerations for protecting participants. This process was used in identifying experts to support the internal validation component of this study.

Based on the stated criteria, participants were nominated from academic environments where they were responsible for design and development of online curricula at the graduate level of their various institutions. In addition, participants considered for this study were involved in the design and development of instruction for higher education institutions in North America. Although interview candidates could be culled from a variety of settings and regional locations, the intent of this research design was to investigate instructional strategies and activities used at the graduate level in North American colleges and universities.

With the approval of the interviewee, interviews were conducted via phone using a recorded teleconference service. A total of three interviews with each participant were conducted. Audio or video recordings are the most effective way of collecting interview data as compared to written notes during or after the interview (Gay et al., 2009; Seidman, 2006). According to Gay et al. (2009), recording the interviews allows the interviewer to focus on the interview structure, flow, and interaction with the participant. Seidman (2006) pointed to the benefits of preserving the words of the participants to help reduce confusion that may come from the transcript analysis and provide documentation in case there are concerns pertaining to the mishandling of actual interviews.

Interview 1: Focused Life History Interview Questions

Seidman (2006) recommended that each of the three successive interviews build upon the previous one. In interview one, he recommended an interview focused on life history in the context of the research being conducted. The questions in the first

interview should be focused on how the participant came to the role of instructional designer in the context of the CoI framework. During the first interview of this study, the questions focused on the participants' histories up to the point where they became instructional designers for online learning in higher education.

The following interview questions were guided by the research questions and were intended to be partially answered by this step in the research design. The interview type was semi-structured, and the interviewer reserved the right to modify follow-up questions should the response to a question lead to further insight related to the research questions (Gay et al., 2009; Stake, 2010). The purpose for the first interview was to focus on the components mentioned by Seidman (2006) to gather knowledge of how each participant arrived in the position of designing instruction using the CoI framework. These interview questions supported the second research question.

In the introduction component of the call, the researcher asked for permission to record the interview to ensure that nothing would be missed and that responses could be reviewed. In addition, the interviewer provided a high-level overview of the three interviews by stating that the first interview would be used to become acquainted and learn more about the participant's career history, specifically, how the participant became an instructional designer in a higher education online learning environment. Table 7 presents the focused life history primary and secondary interview questions. In addition to the key initial question, a series of follow up questions helped to create a focused life history.

Table 7: Focused Life History Interview Questions

Primary Question	How did you come to be an instructional designer using the CoI as a framework for your design and development experiences?
Secondary Questions	How has your life experience helped you get to this point?
	How has education supported you becoming an instructional designer?
	How would you describe the learning theories you use and how they impact your design and development efforts?

In wrapping up the first interview, participants were informed of the date of their next interview and its purpose. Any logistical questions were also reviewed and answered.

Following the completion of interview one, each of the interviews were transcribed and written up into a transcription report. After conducting and recording interviews, Visscher-Voerman and Gustafson (2004) used the audio transcripts to develop a series of reports, to reduce the amount of data to be reviewed. Participants were later asked to read and comment on their specific reports providing the ability for them to validate the reports summarized by the researcher and resulting in more specific and valid content (Visscher-Voerman & Gustafson, 2004). Following the analysis of the first interview, an initial report was created. The report for interview one included a profile of the designer interviewed and key themes that emerged from the focused life interview history. This report was merged with the additional reports coming out of the second and third interviews as part of the CoI Instructional Strategies and Activities Guide, Job Aid, and Design Framework.

Interview 2: Details of the Experience Interview Protocol and Question

The second round of interviews focused on participants' present experience and how they use instructional strategies and activities to inform the CoI (Table 8). At the beginning of the second interview, participants were thanked for their past participation. The researcher provided a reminder as to the purpose of the overall research study and set the context for interview two. Details of the participants' experiences in designing learning for the CoI were explored. One primary question asked interview participants to elucidate the key instructional strategies and activities they use and to learn how they choose these instructional strategies.

Table 8: Details of the Experience Interview Protocol and Questions

Primary Questions	What is it like to design using the CoI framework? What are the details of how and when you choose specific instructional strategies?
	Can you please reconstruct the instructional strategies that you used during your last design experience and how you decided on those strategies?
	What resources (materials or content) would be most useful in the support of practitioners who want to design for the CoI?
Secondary Questions	What learning or instructional theories impact your decision as to the strategies and activities that you use?
	What impact does using the CoI framework have in terms of instructional design decisions you make?
	What do you feel is the impact of selecting instructional strategies on helping to build the CoI?
	What criteria do you use when deciding between multiple instructional strategies?
	What advice would you give to new instructional designers beginning to use the CoI framework?
	What is the link between each of the three presences and the instructional strategies you use?

Interview 3: Reflection on the Meaning Interview

The final interview focused on reflection and making meaning from the context of the two previous interviews. The third interview lasted no longer than 45 minutes for each of the four participants and addressed the convergence of the participant's focused life history in interview one and the details of his or her experience related to instructional development in interview two. According to Seidman (2006), the intent behind the reflection on the meaning interview is to address "the intellectual and emotional connection between the participants' work and life" (p. 18). A list of primary and secondary questions can be found in Table 9. Following this last interview, a process of bracketing as defined by Seidman (2006) was conducted to identify common themes emerging from the questions as well as a list of instructional strategies participants use as part of designing for the CoI. These data were analyzed and used to develop the Guide, Job Aid, and Design Framework. Participants were thanked for their participation and a gift card in the amount of twenty-five dollars from Amazon.com was sent to each participant to recognize his or her commitment to the interview process.

Table 9: Reflection and Meaning Interview Protocol and Questions

Primary Questions	What does it mean to you to be an instructional designer for the CoI? How do you make sense of the work you do and the types of instructional strategy decisions you make as part of your design process?
Secondary Questions	What is your sense of your role in impacting each of the three presences? How has your previous experience supported your efforts at improving the learning that occurs as part of the CoI?

The challenge to the researcher is to "separate the process of gathering and analyzing data" (Seidman, 2006, p. 113). In Seidman's own work, he focuses on dividing up the process of gathering and analyzing data to ensure that opinions are not formed that would impact future interviews. The process Seidman (2006) follows is to complete all of the interviews prior to analyzing the transcripts. The author cautions, however, that this process does not mean that the interviewer should not be considering what they heard in the interview.

Following each of the interviews, a transcript was created. A series of work products was created as a result of the transcript analysis process. After the focused life history interviews, a participant profile was created and key themes and/or data related to the questions asked were highlighted. Following the second and third interviews, the transcripts were reviewed and the Guide, Job Aid, and Design Framework were developed.

Seidman (2006) suggested the first step in analyzing the text of the transcript is a winnowing process-narrowing down the passages of interest related to the study by using brackets. In terms of what to bracket, the author stated that it is important not to over analyze the transcript, and as the transcripts are reviewed, mark those items or passages that are of interest. Once the transcript has been winnowed down to what is important in relation to the study, it is time to prepare the results to be shared. According to Seidman (2006) there are two formats for sharing interview data, including participant profiles and categories or passages grouped based on thematic connections. The latter was selected for this research design.

Analyzing transcripts and organizing them into categories is a more conventional way to present interview data (Seidman, 2006). As the transcripts were reviewed, the researcher identified instructional strategies and activities and labeled each instance. Each instance was classified according to the type of strategy. Interview transcripts were analyzed for instructional strategies and then categorized according to themes. Seidman (2006) recommended being flexible in the labeling of themes as the process of reviewing each transcript will provide clarity regarding the final categorization of information. Once the transcripts were categorized, there was one final step – making meaning from what has been learned through the interview process by interpreting the results of the analysis. This process resulted in the preparation of the Guide, Job Aid, and Design Framework for practitioners to use to identify instructional strategies and activities that inform the CoI.

Phase 3: Development of the Work Products

Following the literature review and the semi-structured interviews, the final products were fully defined and developed. Included in the products was the CoI Design Framework that can be used by practitioners in understanding the impact of a number of factors on the selection of instructional strategies. In addition, the CoI Instructional Strategies and Activities Guide and Job Aid were created and shaped based on both the literature review and the phenomenological interview process. The specifics on how each of the work products were created is outlined in Chapter 4. The work products that were created enable IDD practitioners to understand the CoI and identify instructional strategies and activities that can be used to inform the CoI.

Phase 4: Validation of Models and Tools

Each of the work products developed in phase three was internally validated via a Delphi study. In their efforts to internally validate the multiple intelligences (MI) ID model, Tracey and Richey (2007) selected a panel of four subject matter experts (SMEs) based on a set of criteria that included their backgrounds and expertise in several areas including model development. In the selection of their internal validation panel, the authors identified three members from academic settings and one expert who was an ID practitioner. The authors used a three-round Delphi study to internally validate the MI ID model. The validation process for this research effort included representation of three subject matter experts from academia with similar criterion established by Tracey and Richey (2007) in the validation of the MI ID model. Participants in the Delphi study included experts in the field of the CoI and expert IDs in the field of online learning.

In the development of an MI ID model, Tracey and Richey (2007) performed an initial step of reviewing seven instructional design models based on a series of criteria including the models' contributions to the instructional design discipline. The authors then identified six curriculum models that supported MI based on set of criterion. These models were analyzed using a combination of the four major ID activities identified by Gustafson and Branch (as cited in Tracey and Richey, 2007) and the six core elements of ID as defined by Richey (as cited in Tracey and Richey, 2007). The result of this effort was the development of a MI-specific instructional design model.

Once the work products were developed, it was critical to internally validate the work products created to ensure that they were useful to practitioners in the field. In order to effectively validate the work products, the Delphi method was used. Norman

Dalkey and Olaf Helmer are cited as the developers of the Delphi method initially developed at the Rand Corporation (Murry & Hammons, 1995). Although a number of Delphi experiments were conducted between 1950 and 1963, it did not become a widely used method until after the first article was published in 1963. In the 1950s, Rand developed and used the Delphi method as a way to gain group consensus without face-to-face interaction and to aid in predicting military priorities to improve group decision making (Murry & Hammons, 1995). Delbecq, Van de Ven, and Gustafson in Murry and Hammons (1995) define the Delphi method as "a method for the systematic solicitation and collection of judgments on a particular topic through a set of carefully designed sequential questionnaires interspersed with summarized information and feedback of opinions derived from earlier responses" (p. 423).

Following the creation of the Guide, Job Aid, and Design Framework, a process for internal model validation as described by Richey and Klein (2007) was conducted to identify opportunities to improve them. The research design called for the use of a Delphi study to internally validate the work products that were developed following the literature review and the semi-structured phenomenological interviews. The focus of the Delphi study was on validating the work products created in phase three. The process steps to conduct the Delphi study included:

1. Assemble Delphi panel
2. Send welcome packet to Delphi panel
3. Conduct round one of the Delphi study
    a. Analysis of round one feedback
    b. Revisions of content based on round one
4. Conduct round two of the Delphi study
    a. Analysis of round two feedback

b. Revisions based on round two feedback

5. Delphi study – analysis of round three feedback
6. Forward results to panelists

One of the assumptions of the Delphi model is that the "concept of an expert is definable" (Ritchie & Earnest, 1999, p. 36). The expert Delphi panel for this study was comprised of three experts. The nomination criteria for the Delphi panel differed from the interview phase. The primary difference between the nominations for the interview and the Delphi panel is that for the Delphi panel, increased emphasis was on the panel members' experience and background in the CoI framework and design background. Participants in the Delphi panel needed to meet at least one of the three criterion stated in Table 10.

Table 10: Delphi Panel Selection Criteria

Item	Criterion
1	Published CoI author where the article has a primary focus on the CoI
2	Expertise in instructional theory with a minimum of five years instructional design and development experience in online learning environments
3	Currently practicing in the field and using the CoI as a framework for their design and development activities

The welcome packet was provided within three weeks of the start of the study. In the welcome packet, panelists were given background information on the study and their role in the study as well as the structure of the Delphi study. The welcome packet described the expectations of the panelist, estimated time commitment; and contact information of the researcher for each phase of the Delphi study, including previews of the types of questions to be asked in each round of the study.

Following the identification of the expert panel and distribution of the research study welcome packet, the first round of the Delphi study commenced. The procedure for the first round, including the intent of the expert panel questions followed the work of Tracey (2001). Tracey used the Delphi method to validate The Multiple Intelligences (MI) Design Model by a panel of Subject Matter Experts. The instructions for the first round of the Delphi included an introductory letter providing information on the upcoming interview including logistics and background information on the study. The questions that the panel responded to include the following as part of the first round of the Delphi study:

Delphi Panel Round One: CoI Instructional Strategies and Activities Guide Questions

1. How would you amend or clarify the CoI Instructional Strategies and Activities Guide?
2. How would you amend or clarify Section 1: CoI Primer (as outlined in the guide)?
3. How would you amend or clarify Section 2: How Life Experiences Affect Designing for the CoI?
4. How would you amend or clarify Section 3: The ID Practitioner?
5. How would you amend or clarify Section 4: Advice to Instructional Designers Using the CoI?
6. How would you amend or clarify Section 5: The Importance of Theory in Designing for the CoI?
7. How would you amend or clarify Section 6: Instructional Strategies and Activities?

8. How would you amend or clarify Section 7: How the CoI Informs Design?
9. How would you amend or clarify Section 8: Using the CoI as a Design Process?
10. How would you amend or clarify Section 9: Selecting Appropriate Instructional Strategies and Activities?
11. How would you amend or clarify Section 10: The Need for Additional Research?
12. Following your review of the guide what area(s) do you recommend the most focus on during revisions?

Delphi Panel Round One: Instructional Strategies and Activities Job Aid Questions

1. How would you amend or clarify the CoI Instructional Strategies and Activities Job Aid?
2. How would you amend or clarify Section 1: The Community of Inquiry Overview?
3. How would you amend or clarify Section 2: The CoI Design System?
4. How would you amend or clarify Section 3: CoI Survey and Instructional Strategies and Activities?
5. Following your review of the CoI Instructional Strategies and Activities Job Aid, what area(s) do you recommend the most focus on during revisions?

Participants in the expert panel were given two weeks to respond to the questions. Responses were categorized based on the questions asked and a plan to incorporate feedback into the work products was developed. Revisions to the work products produced a second iteration of the Guide, Job Aid, and Design Framework. During the

revisions, documentation of how feedback was incorporated into the work products and outlined as part of the packet sent in round two of the Delphi experiment.

The second round of the Delphi method included a revised packet of information including the Guide, Job Aid, and Design Framework sent to participants via email. Included in this packet was a letter with the remaining deadlines, the revised packet of work products, a questionnaire to be filled out while reviewing the work products, and a summary of the feedback from round one. The questions for this round included a 4-point Likert scale (*strongly agree, agree, disagree, and strongly disagree*). The questionnaire included the opportunity to provide open-ended feedback or comments specific to each of the questions asked during round two. The questions asked during round two of the Delphi study can be found in Chapter 4 Results.

The final round of the Delphi study included a revised packet of information based on the feedback in round two including an updated Guide, Job Aid, and Design Framework. Participants received an executive summary of the changes made based on the feedback in round two and were informed that the third round of the study included one final question to achieve consensus. Similar to Tracey (2001), the third round of the Delphi consisted of one statement. The statement asked to achieve consensus was "The information contained as part of the Community of Inquiry (CoI) Instructional Strategies and Activities Guide and Job Aid support instructional design practitioners in designing for the community of inquiry."

Formats for Presenting Results

The format for presenting results was based, in part, on each phase of the research design. In phase one – the literature review, a table that identifies instructional strategies

was created and incorporated in the CoI Instructional Strategies and Activities Guide and Job Aid. In phase two – the semi-structured phenomenological interviews, the information and data were consolidated in a series of reports and additional instructional strategies were distilled and included in the Guide, Job Aid, and Design Framework. A subset of the phenomenological interviews was selected and narratives were developed. The narratives were incorporated throughout the Guide and Job Aid to allow IDs to experience the design and development process through the eyes of a current practitioner.

Resource Requirements

The following resources were required to complete the study in addition to the resources listed in Table 11:

- Teleconference recording services
- Four instructional designers to participate in a semi-structured interview
- Transcription services to transcribe the interviews
- Three experts to participate in the Delphi panel

Summary

The research methods described demonstrate a solid approach to qualitative design and development research design. While the research design provides an overall structure there is adequate flexibility that is desired in qualitative research. Upon completion of the literature review and the phenomenological interviews, the Guide, Job Aid, and Design Framework were constructed. The final phase – the Delphi panel, enabled the work products to be internally validated.

Table 11: Budget

Supplies	**Cost**
Paper	$225
Printer Ink	$250
Subtotal Supplies	*$475*
Services	**Cost**
Proofreading	$150
Recorded Teleconference Services	$150
Transcription Services	$658
Subtotal Services	*$958*
Compensation for Participants	**Cost**
Amazon Gift Cards for Interview and Delphi Panel Participants (7 @ $25)	$175
Total Compensation	*$175*
Total Cost (Supplies + Services + Compensation)	**$1,608**

Chapter 4

Results

Introduction

The goal was to provide practitioners of instructional design and development (IDD) concrete instructional strategies and activities that inform the CoI framework and that can be used in the design and development of an effective online community of inquiry. The research questions were:

1. How can the study of instructional design theory and models inform the CoI framework?
2. What existing instructional design and development theories and models guide designers and instructors on implementing the CoI framework?
3. What instructional strategies and activities support the CoI framework?
4. Given the CoI framework, what instructional strategies and activities are needed to guide practitioners in creating online communities of inquiry?

This chapter presents a detailed description of how – through a qualitative research approach – three work products were developed to support IDD practitioners in the creation of a community of inquiry. The three work products include: The

Community of Inquiry (CoI) Instructional Strategies and Activities Guide (Guide) and The Community of Inquiry (CoI) Instructional Strategies Job Aid (Job Aid). In addition, the results produced the CoI Design Framework, which is included as part of the Guide and Job Aid. The Design Framework provides insight for designers into how their experiences with four factors (Learning Theory, Instructional Design Theory, Life/Design Experiences, and Instructional Strategies and Activities) influence the design and creation of a community of inquiry. The chapter includes a brief introduction, purpose, procedures, analysis of results and findings, self-assessment, and a summary for each of the research phases that resulted in the creation of the Guide, Job Aid, and Design Framework. This chapter also includes the results of each phase of the development process.

The introduction and purpose provide context and background information for each of the phases and relates the intent behind each phase in achieving the goal and responding to the research questions. The procedures section for each phase includes detailed information on the series of steps followed in each phase. The procedures vary for each phase and are intended to provide insight into the steps used and the creation of outputs for each phase. The intent was for the outputs of each phase to subsequently feed into the next phase as inputs. These inputs would continue to build upon and result in the validation of the work products that were created in phase four. The analysis of results synthesizes the results of each of the phases and provides insights into the outcomes of each phase. The findings section included insights the researcher uncovered as part of each phase in working to achieve the goal and respond to the research questions. The self-assessment section of each phase includes what went well, what did not go well,

recommendations based on lessons learned, and what the researcher would do differently or the same if given the opportunity.

This is a design and development study that relies heavily on qualitative research methods. Due to the nature of the qualitative studies, the results chapter focuses on the processes and procedures followed in creating and validating the work products that resulted from each phase. The CoI Instructional Strategies and Activities Guide, Job Aid, and Design Framework are located in Appendix A and B, respectively.

The results chapter begins with a review and assessment of phase one, the literature review. The next three phases-instructional design practitioner interviews, development of the work products, and the validation of the work products-are covered in greater depth as they provide the greatest insight into how the Guide, Job Aid, and Design Framework were developed and validated.

Phase 1: Literature Review

Purpose

The design and development research design included a number of qualitative methods – the first being a thorough literature review. Marshall and Rossman (2011) suggested that through thorough reviews of the literature, the researcher is able to make more sound decisions on the specific research methods used as part of the research design.

The purpose of the literature review was to support the overall goal to provide practitioners of instructional design and development (IDD) concrete instructional strategies and activities that inform the CoI and that can be used in the design and development of an effective online community of inquiry. In addition, phase one was

critical to informing the remaining three phases. The literature review also helped to shape decisions made throughout the research process. Phase one addressed research questions one, two, and three, respectively. Prior to beginning phase two, it was critical to determine what existed in the literature that would inform subsequent phases.

Research question one, "How can the study of instructional design theory and models inform the CoI framework?" aimed to address the theoretical foundations of instructional design theories and models and the CoI in order to determine how the two relate or support each other. In addition, the intent was to understand how researchers and practitioners can synthesize and leverage the two fields of study in creating a community of inquiry. Research question two, "What existing instructional design and development theories and models guide designers and instructors on implementing the CoI framework?" was also informed through the review of the literature. It was important to ascertain if any existing theories or models supported the practitioner in developing the community of inquiry prior to beginning future phases of the study so that these theories or frameworks could be used in formulating the phenomenological interview questions.

Research question three, "What instructional strategies and activities support the CoI framework?" was also informed by the review of literature. It was critical to capture the instructional strategies and activities identified in literature that would support the instructional design practitioner in developing a community of inquiry and build off of what the literature reported in terms of effective instructional strategies and activities that could be used as data points for future research phases.

Procedures

The CoI framework is one of the more widely used frameworks supporting online learning and effectiveness (Garrison & Arbaugh, 2007). As of July 2012, one of the original articles regarding the CoI - Critical inquiry in a text-based environment: Computer conferencing in higher education (Garrison et al., 2000) has been cited 1,372 times according to Google Scholar. This is a significant amount of research to review. The researcher employed several procedures to narrow the focus to a more manageable and relevant subset of the literature applicable to this particular investigation.

First, search criteria were established to return relevant and pertinent searches. It was determined that using a combination of searches that included the use of specific keywords would yield the best results. Each search combination included the terms Community of Inquiry and CoI as part of its conditions. Additional search terms were added to narrow the results and included keywords such as instructional strategies, instructional design strategies, instructional activities, learning theory, learning models, strategies, and activities. This procedure aided in focusing the research to literature aimed at supporting both the goal and research questions.

Second, with the large amount of research available on the CoI, it was important to identify journals in which CoI articles were most commonly used to deliver the research on the CoI framework. Through the use of Google Scholar, a number of journals began to filter to the top in terms of the number of articles that published results of CoI studies. The two most useful refereed journals providing research on the CoI included *The Internet and Higher Education* and *Journal of Asynchronous Learning Networks (JALN)*, with 162 and 16 articles referencing the CoI, respectively.

The use of Google Scholar was critical to the success of phase one; however, it was vital to also be able to gain access to the electronic journals that housed the full articles. The Nova Southeastern University (NSU) Alvin Sherman Library consists of a number of databases related to the field of education where articles matching the criterion could potentially be found. As of July 2012, the Alvin Sherman Library contained 36 educational and searchable databases. The challenge was in having to search each of the databases separately to begin to identify where research regarding the CoI would be the most prolific.

Using Google Scholar provided more flexibility in identifying a broader set of articles matching the previously stated criteria. In addition, the flexibility of the Google Advanced search engine enabled the researcher to identify an original article and then identify subsequent articles that cited the original article. Providing this type of additional information resulted in a level of comfort in understanding the value of the original article. For example, a search using the terms "community of inquiry garrison" yielded approximately 41,400 results. In Google Scholar, the information that accompanies each article includes the number of times cited, abstract, and the publisher of the journal. As search results were refined and articles identified, the NSU databases were used to retrieve full articles relevant to the study.

Analysis of Results and Findings

The CoI is defined by Garrison et al. (2000) as a constructivist framework. A number of constructivist learning theories and instructional design models were reviewed as part of this phase of the study. Theories and models reviewed for phase one included constructivism, social constructivism, Jonassen's (1999) model for designing

Constructivist Learning Environments (CLEs), Merrill, Li, and Jones' (1991) Instructional Transaction Theory, Integrated Framework of Constructivist Based Curricula Design, Online Collaborative Learning Framework, and Guidelines for Online Problem-Based Learning (PBL). While these theories, frameworks, and models did not specifically relate to the CoI, they could be used to inform the designers approach towards creating a community of inquiry. In reviewing the CoI literature, the researcher identified few studies that connected the CoI-described as a constructivist framework-with guidance on how designers could create this type of environment.

Research conducted to identify specific instructional strategies and activities that could potentially impact one or more of the CoI presences proved more useful to the study. A number of potential instructional strategies and activities were uncovered as part of phase one of the literature review. As instructional strategies and activities were identified, they were included in phase three of the study-during the development of both the Guide and the Framework.

There was a lack of research focusing on the direct connection between learning and instructional design theory and the CoI. Although the CoI has been identified as a constructivist framework, rooted in part by the work of Dewey, there was little discussion or research on the connection and implications for IDDs. The connection in the literature between instructional strategies and activities and their impact on developing one of the three presences is more widely developed. One of the best examples of this is the work by Richardson and Ice (2010) who looked at the impact of three instructional strategies in relation to a student's engagement and levels of critical thinking in online discussions via the practical inquiry model (PIM) (triggering, exploration, integration, and resolution).

Self-Assessment

The CoI framework has resulted in a significant amount of literature being produced from various perspectives. Narrowing the scope of the literature specifically to the goal and research questions allowed the researcher to identify relevant information and gain insights that would ultimately support future phases of the study. The tool used in this part of the study was Google Scholar; however, other tools should have been evaluated prior to deciding on its use. One tool that could have been used in place of Google Scholar is Web of Science, provided by Thomson Reuters. Web of Science is targeted for academic research and covers a wide variety of content for both journals and open access journals and spans a wide range of disciplines.

In 2010, *The Internet and Higher Education* (volume 13, issues 1-2) published a special edition (edited by Swan and Ice) dedicated to the ten year existence of the CoI in which all articles were relevant to the CoI framework. This special issue included reflections on the CoI, including a retrospective of the first ten years of the CoI written by several founders of the CoI framework. It also contained new research intended to further the understanding and importance of the CoI framework.

Additional research needs to be conducted to further explore how the CoI as a constructivist framework is informed by constructivist learning theory. Attention in the research literature about how constructivism informs the creation of a community of inquiry would be beneficial to IDD practitioners who have the responsibility of creating these types of learning environments.

In addition, considering the amount of research conducted on the CoI, it may be time to consider conducting a meta-analysis. The purpose of conducting a meta-analysis

would be to level-set and consolidate the previous decades-plus work on the CoI in order to begin to shape future research paths. Combining and analyzing the results of the studies related to the CoI would provide a new starting point and foundation of knowledge from which new knowledge and research could be conducted. Also, new threads of research that could be conducted to further the knowledgebase of the CoI may be partially uncovered.

Phase One Summary

The purpose of phase one was to examine the literature to identify relevant literature on the CoI in support of the goal and to determine to what extent the literature could respond to research questions one, two, and three. The results of the literature review were used to shape the phenomenological interviews as part of phase two. The literature review provided insight into what experts studying the Community of Inquiry have identified that would support practitioners in creating a community of inquiry.

Phase 2: Instructional Design Practitioner Interviews

Purpose

The purpose of phase two was to identify instructional strategies and activities that would support a practitioner in the creation of a community of inquiry. Data were collected through a series of three phenomenological interviews with professionals who had a combination of expertise in instructional design and the CoI. Research question three, "What instructional strategies and activities support the CoI framework?" and research question four, "Given the CoI framework, what instructional strategies and activities are needed to guide practitioners in creating an online community of inquiry?" guided this phase. The structure of the interview questions also supported discovery and

exploration of research questions one and two. The series of phenomenological interviews provided insight into the types of work products that should be produced to support practitioners designing to create a community of inquiry, resulting in the creation of the Guide, Job Aid, and Design Framework. Seidman's (2006) recommendations regarding the three-interview series, structure, and spacing, guided the phenomenological interview process as described in Chapter 3.

Interview one focused on the background and history of each of the interviewees; including how the IDD expert practitioner came to understand and use the CoI as well as what has influenced his or her instructional design career. The importance of this first interview is that it helped to significantly influence and shape the CoI Design Framework found in both the Guide and Job Aid. The framework evolved as a result of how practitioners came to know and use the CoI from their diverse perspectives and represents a way to understand the importance and influence of a practitioner's path in designing for the CoI as well as the types of instructional strategies and activities employed by the IDD.

The second interview was used to identify details of the experts' experience in designing for the CoI. This interview was the longest of the three interviews (averaging approximately 90 minutes each) and provided the greatest insight into how practitioners create an online community of inquiry. Interview two uncovered the approach to the types of instructional strategies and activities used as part of the IDD's design process. While all three interviews conducted with each practitioner provided great insight, this interview provided the most detail and content in support of the creation of the CoI

Instructional Strategies and Activities Guide and Job Aid, and it provided insight into the creation of the Design Framework.

The third and final interview-the shortest of all the interviews-provided the ability for each practitioner to reflect and make meaning based on the perspective of his or her previous two interviews. Seidman (2006) pointed out that the intent behind this interview was to address "the intellectual and emotional connection between the participants' work and life" (p. 18). Participants had the opportunity to reflect and make meaning through the series of questions asked that attempted to connect their responses from interview one - life history, with the detailed insights provided in interview two where they had provided concrete examples of the types of instructional strategies and activities used in creating a community of inquiry.

Population and Sample

The initial criteria for the phenomenological interviews yielded no potential participants. It was discovered via the initial email to approximately 125 potential participants that it was unlikely anyone would have the level of experience requested in the initial criteria. The initial criteria included (1) a nomination or recommendation made by a published CoI author, (2) a minimum of 10 years of design and development experience with at least 3 years of ID experience in designing learning in asynchronous environments using the CoI framework, (3) actively designing and developing curriculum for online learning environments in a graduate setting in North America, and (4) the participant be well versed in CoI framework and how each of the three presences supports the educational transaction.

A respected expert, who has frequently published articles involving the CoI, commented to the initial criteria by stating that "As a note – the 10 year criteria may give you problems." Assuming the level of depth of both instructional design and CoI expertise would result in a large pool of potential candidates was faulty.

A second email was drafted and sent to the potential participants with revised criterion. The revised criteria eliminated the requirement to be nominated by a CoI author and reduced the level of expertise sought in terms of experience in design from ten years to five years. Other criterion was modified to identify a larger pool of potential interviewees. In addition to the emails, a flyer was distributed at the 2011 American Educational Research Association (AERA) annual conference in an attempt to generate more interest and potential interviewees. See Appendix D for copies of both emails with the initial and revised criteria in Appendix E.

The original goal was to find six participants for three interviews as part of the phenomenological interview process. Ultimately, four individuals were identified and participated in the series of three interviews. These participants had diverse backgrounds in both design and the CoI. Three of the four participants had extensive knowledge of the Community of Inquiry. In addition, the four participants represented two institutions of higher learning, with three of the participants focused on designing and developing curricula with faculty as a primary component of their job roles. Detailed information on each of the four participants is included in Appendix A of the Community of Inquiry (CoI) Instructional Strategies and Activities Guide: The ID Practitioner. The profiles of the practitioners include information on each practitioner's career path, exposure to instructional design, higher education experience, and CoI expertise.

Procedures

There was a series of five procedures used during the phenomenological interview process. First was the identification of potential participants who could provide expertise in both the design and development of online learning and also had expertise with the CoI framework. Criteria were developed, and a list of potential participants to include in the nomination was generated. As noted, since the first recruitment attempt yielded no responses, the criteria were modified, a second recruitment email was sent, and a flyer was distributed at the 2011 AERA conference.

Second, following the series of emails and the distribution of the flyer at the 2011 AERA conference, ten individuals were identified as potential candidates. An email requesting the nominee to participate in the study was sent (See Appendix F) to engage his or her level of interest. Out of 10 ten potential interviewees, four individuals volunteered for the series of phenomenological interviews. Participants completed Institutional Review Board forms-giving their consent to the interviews, including the audio recording of the interviews.

Procedures three, four, and five included participation in three one-on-one interviews (Focused Life History Interview, Details of the Experience Interview, and the Reflection and Meaning Interview). Each of the three interviews was scheduled with the participants, a total of 12 interviews. The series of interviews was completed over a period of seven days. One expert participated in the first and second interviews on the same day, with approximately four hours between interviews. All remaining participants were interviewed over a period of seven days – with only one interview scheduled per day. Due to timing of the interviews and schedules of each of the participants, the

interviews of the four participants were completed over approximately six weeks. Each of the interviews was audibly recorded to ensure accuracy of transcripts that would be created in the next phase of the study.

Interviewees were asked up to four questions during Interview One, the Focused Life History Interview (Table 12). Due to the nature of the semi-structured phenomenological interviews, additional questions may have been asked based on the response of the participant.

Table 12: Focused Life History Interview Questions

Primary Question:
How did you come to be an instructional designer using the CoI as a framework for your design and development experiences?
Secondary Questions:
How has your life experience helped you get to this point?
How has education supported you becoming an instructional designer?
How would you describe the learning theories you use and how they impact your design and development efforts?

Interviewees were asked up to nine questions as part of the second interview, the Details of the Experience Interview (Table 13). Due to the nature of the semi-structured phenomenological interviews, additional questions may have been asked based on the response of the participant.

Table 13: Details of the Experience Interview Questions

Primary Questions:
What is it like to design using the CoI framework? What are the details of how and when you choose specific instructional strategies?
Can you please reconstruct the instructional strategies that you used during your last design experience and how you decided on those strategies?
What resources (materials or content) would be most useful in the support of practitioners who want to design for the CoI?

Secondary Questions
What learning or instructional theories impact your decision as to the strategies and activities that you use?
What impact does using the CoI framework have in terms of instructional design decisions you make?
What do you feel is the impact of selecting instructional strategies on helping to build the CoI?
What criteria do you use when deciding between multiple instructional strategies?
What advice would you give to new instructional designers beginning to use the CoI framework?
What is the link between each of the three presences and the instructional strategies you use?

Interviewees were asked up to four questions during the third interview, the Reflection and Meaning Interview. Due to the nature of the semi-structured phenomenological interviews, additional questions may have been asked based on the response of the participant.

Table 14: Reflection and Meaning Interview Questions

Primary Questions:
What does it mean to you to be an instructional designer for the CoI?
How do you make sense of the work you do and the types of instructional strategy decisions you make as part of your design process?
Secondary Questions:
What is your sense of your role in impacting each of the three presences?
How has your previous experience supported your efforts at improving the learning that occurs as part of the CoI?

Analysis of Results and Findings

Phenomenological interviews provided an incredibly rich set of data. Insights provided by the SMEs as part of each interview included both the breadth of his or her experiences as well as the depth of experiences as both designers and experts in the CoI framework. Each of the interviews acted as a building block for subsequent interviews. The results and outputs from the first interview informed the second interview. Similarly, the results from the second interview provided context and informed the third interview. As the interviews began and progressed, the results of each interview-both individually and collectively-provided guidance and insight into how the study could support the overall goal of the research and inform responses to each of the research questions.

Analysis of the transcripts was guided by the work of Seidman (2006). Seidman recommended a process to analyze the transcripts and identify themes via an approach discussed in-depth in Chapter 3 (the Methodology). As one expert stated, "…while faculty have heard of instructional design, even fewer have heard of the CoI and even fewer understand it." This type of statement informed the elements included in the Guide, Job Aid, and Design Framework. Listed below are other examples of the key findings and results of the phenomenological interview process. These and other findings were used in the design and development of the Guide, Job Aid, and Design Framework as described in phase three.

- There is significant influence on expert instructional design practitioners' life/design experiences and the types of instructional strategies and activities designers use to create a community of inquiry.

- There is a gap between the research of the CoI as a constructivist framework and how expert instructional design practitioners approach designing for a community of inquiry from a constructivist learning/instructional design theory perspective.
- There is little guidance, both theoretical and practical, to support designers (or faculty members/teachers) in identifying environments conducive to the use of the CoI versus other potential theoretical frameworks.
- Insight into the elements that affected the designer's approach to designing in an online learning environment in creating a community of inquiry, resulting in the creation of the CoI Design Framework.
- The types of work products (e.g., tools, content and topics) that would support the IDD practitioner in creating a community of inquiry.
- The mindset of the IDD when designing for the CoI framework.

Self-Assessment

The most critical procedure of phase two was identifying individuals to participate in the interview process. In retrospect, the criterion initially established by the researcher was flawed. Reflecting on the overall process and outcomes, the researcher should have engaged experts in the CoI to co-develop the initial criterion that would result in a broader pool of participants to complete the phenomenological interview process. Providing a more refined set of criteria from which to identify interview participants would have significantly shortened the time required to complete the interview phase of the study. The amount of time and the amount of additional time needed to recruit potential participants, resulted in lost time and extended the duration of this phase of the study.

The interviewees' experience and background as described through their interviews provided rich data from which to create the CoI Instructional Strategies and Activities Guide, Job Aid, and the Design Framework. However, three of the

interviewees work at the same higher education institution. While each certainly provided a different lens through which he or she perceives and applies the CoI framework, they all have the commonality of context in which they derive their CoI experiences. The diverse backgrounds of these three experts were apparent in their approach towards instructional design and the types of instructional strategies and activities they used in the design of their online learning experience. Perhaps additional perspectives from designers who represented other institutions would have provided more diverse insights and perspectives on the work products developed as an output of the interview phase.

In addition to the initial criteria being too stringent, the time commitment for participating in the interview process resulted in some candidates declining to participate. Reflecting on the interview process and the results of the interview, it is important *not* to shortcut the interview process. In fact, Seidman (2006) emphasized this point when he described the three-interview structure. Participants should be aware of the time investment in the interview process and be informed that it is intensive. Participants should also understand that the process varies and that there is a range of time and effort involved in the commitment.

Even with the three areas suggested for improvement, the data collected during the phenomenological interview process was incredibly detailed and rich. The process of conducting the interviews in a semi-structured format provided the opportunity to explore responses to the initial questions and identify new topics that would be valuable in determining the work products and the overall usefulness of the study. The volume of the information collected from the experts required the researcher to carefully follow the process recommended by Seidman (2006) in order to develop the work products.

Phase Two Summary

The expert interviews conducted in phase two demonstrate the limited knowledge and experience faculty have regarding constructivism. Interviewees mentioned that most faculty members they work with have a good understanding of pedagogy. Faculty members' knowledge about constructivism and how to create constructivist learning environments was more limited. In working with faculty to use the CoI framework as the backdrop for a course, expert IDDs had a dual opportunity to educate on the CoI framework as well as the constructivist nature of the learning environment and how to translate their knowledge and expertise into strategies and activities that can be employed by an instructor or faculty member.

The purpose of phase two was to conduct a series of three phenomenological interviews with four IDD expert practitioners. The interviews were completed over a six week period with each participant completing the three interviews within seven days of beginning the process. The interviews were transcribed, and the results were used in phase three to develop the Guide, Job Aid, and Design Framework.

The transcription process was critical for success in the development of the work products. The process began with a search for an organization that could quickly transcribe each of the interviews with a high degree of accuracy, in the time period allotted, and at a reasonable price. After researching several organizations, Scriptosphere was chosen based on reference checks, quality, speed, and cost. The Scriptosphere pricing model is based in large part on the quality of the audio files provided and the number of participants in the audio recording. The pricing model included three types: Type 1 Audio was classified as audio that is clean and clear with little-to-no disturbance

or background noise and includes one-on-one interviews over a digital line. Type 2 Audio was classified as having slightly unclear audio with little disturbance, but some slight static, and Type 3 Audio was classified as having reduced audio quality with significant background noise, more than four or five speakers, seminars in large areas, and/or different and heavy accents.

Two audio files were emailed to Scriptosphere in order to ascertain the price based on the quality the audio files. Following feedback from Scriptosphere, each audio file was classified as Type 1. Instructions were given to Scriptosphere to capture the transcription verbatim and to transcribe the audio into a word processing format that allowed the researcher to analyze transcripts by line. For those portions of the audio that were not able to be transcribed due to cross talk, garbled voices, etc., Scriptosphere provided visual clues as part of the transcription document. Within the transcription document, the following key was put into place when audio was difficult to understand: {curly brackets} for best guess, [xx] for unintelligible, (parentheses) for non-verbal sounds. The symbols provided the researcher with insight into the level of quality of the transcripts.

Upon receipt of each of the transcribed audio files, a quality analysis was conducted. The researcher identified and transcribed a small segment (3-5 seconds) of the original audio clip. The next step was to search the transcript document for the exact phrasing identified by the researcher. This was done at least twice for each of the transcriptions of the audio files to ensure the accuracy of the transcription process. Once satisfied with the quality, the process of content analyzing the transcripts began with an initial review of each of the transcripts. The amount of content generated for all of the

interviews was 275 pages in total. For the series of three interviews with each of the four participants, 51, 55, 74, and 95 pages were transcribed from the audio recordings. Interview one averaged 19.5 pages of transcribed content while interviews two and three averaged 28.75 and 20.5 pages, respectively. These averages reflect the level of depth of each of the interviews, with the second interview being the most in-depth and producing the greatest amount of content. Samples of the transcripts can be found in Appendix G.

Phase 3: Development of CoI Instructional Strategies and Activities Guide and Job Aid

The purpose of phase three was to take the outputs of the series of interviews and develop work products that would be used by practitioners to support the design and development of a community of inquiry. Seidman (2006) outlined a process for reviewing transcripts, including the use of a winnowing (or bracketing process). The author describes reviewing transcripts and categorizing information based on thematic connections (i.e., identifying key related themes across interviews). The ability to analyze and then bracket (categorize) information across interviews helped the researcher to develop the key themes which translated into the outlines for the Guide and Job Aid, and ultimately resulted in the initial drafts to be used in phase four: the Delphi study.

Procedures

The procedures were based largely on Seidman's work (2006). To summarize the procedures, the first step was to review each of the transcripts at a high level to gain understanding of the results of each of the interviews. The second procedure was to conduct the bracketing process as described in chapter three. According to Seidman (2006) bracketing relevant information acts as a winnowing (narrowing) process allows

the researcher to focus on key aspects of the interview. The next procedure was to analyze and categorize the bracketed information in order to develop the detailed outline of the Guide and Job Aid. The final procedure was to complete an initial draft of the Guide and Job Aid using content from the interviews and literature review conducted in phase one.

The review of the transcripts was important in capturing an overall view of the data collected throughout the interview process. Marshall and Rossman (2011) suggested that researchers immerse themselves in the data by reading and re-reading the transcripts. Once immersed in the data, the researcher made hand-written annotations on the hard copies of the transcripts of those points that were interesting or where information from an interviewee drove additional questions. This step initiated the data reduction process (Marshall & Rossman, 2011).

The next procedure was to take a more detailed look at the interview transcript data and use the bracketing process to winnow the information. The bracketing process was critical to defining the relevant information that would eventually result in the creation of the work products. Using the process outlined by Seidman (2006), each of the interview transcripts was reviewed in depth, and information relevant to the responses of the interview questions were used to create the work products.

Analysis of Results and Findings

Ultimately, the analysis of this phase reveals itself in the finished products – The CoI Instructional Strategies and Activities Guide and Job Aid. Interview participants had the opportunity to provide input and inform the researcher on what types of content should be created. When discussing the value of creating content to support IDs, one

expert stated "…and I'm so glad you're doing this, because that written empirical research piece that says instructional design practices equals Community of Inquiry equals student success…it's not written yet. It's talked about but it's not written." Another expert articulated some frustration when initially using the CoI framework because "it would have been nice…to say…for cognitive presence, if this is the desired outcome, here are your choices…". The comments from the experts helped to shape the overall content, sequence, and flow of the Guide and Job Aid. Several of the key aspects uncovered as part of the analysis are described in the following sections because they were significant enough to influence and shape the products.

The CoI Design Framework

Chapter 3 described a process of creating reports following each of the series of interviews. This step in the process occurred after all of the interviews and transcripts were created. Following the review of the transcripts for interview one, a summary was created that included a profile of each of the designer's backgrounds. The intent was to provide information on how a designer's experience influences the expert's design decisions in creating online learning using the CoI.

The process of developing this summary of each practitioner's experience was influential in the creation of the CoI Design Framework. As the review of interviews continued, four common themes that were critical to practitioners leading up to and influencing the design of online communities of inquiry became apparent. These themes turned into the outer ring of the CoI Design Framework (included as part of the Guide and Job Aid) – as they all heavily influenced the practitioners approach to designing and creating a community of inquiry. The four themes that arose from the interviews

included learning theories, instructional design theory, the participants' life/design experiences, and instructional strategies and activities.

The primary challenge in developing the framework was creating a graphical representation of how these four dimensions interacted or impacted how IDDs interacted and engaged the CoI from a design perspective. Multiple iterations of the framework were created with the challenge to represent the importance of each dimension without suggesting that any one dimension was more important than the other. Each designer's unique story had to be represented by the framework and designed so that future practitioners would be able to understand and use the framework to interpret their unique experiences as instructional designers and how this would impact or influence the types of design decisions they would make in creating a community of inquiry.

Throughout the multiple iterations of the framework, the challenge was to articulate that while each of the four dimensions impacted the designer's approach to the CoI, the dimensions did not have a sequential aspect (e.g., learning theory builds on instructional design theory, which then builds on life/design experiences, resulting in the types of instructional strategies and activities used by the IDD practitioner). Early iterations of the framework appeared to represent the four dimensions as linear – with certain elements coming before other elements. After reviewing the interview transcripts, particularly interview one, it became apparent that although each dimension was important, there was no dependency relationship. While each of the dimensions impacted the IDDs approach to designing for the CoI, the influence of any dimension could come into play at any time. The result was the development of the final graphic currently used in both the Guide and Job Aid, which can be found in Appendix A and B, respectively.

One of the major modifications of the final graphic included the elements of the CoI; however, the traditional CoI diagram presents each of the three presences of the CoI as equal. In the CoI Design Framework graphic, the decision was made to visually depict the three presences surrounding the educational transaction without implying the need for having equal amount of social, cognitive, and teaching presence.

The (CoI) Instructional Strategies and Activities Guide and Job Aid

After each of the interviews had been analyzed using the bracketing technique, the Guide and Job Aid were created. The end result of the analysis of the transcripts was a draft of the Guide and the Job Aid. Although a number of findings resulted from the analysis of the transcripts and were ultimately incorporated into the Guide and Job Aid, the following is a brief list of some of the critical findings:

- Practitioners without a background in the CoI need a CoI Primer that can quickly get the IDD up to speed on the core concepts of the framework that provide more context around the model and the elements contained within each of the presences.
- Designer's intent – a concept that describes the designer's approach to identifying and using instructional strategies to impact one or more of the three presences. The CoI allows the designer to shape the instructional strategies in the context of the desired effect for the CoI.
- The types of instructional strategies and activities used can apply to or impact one or more of the three presences based on the designer's intent.
- The link between theory and practice was not as profound as originally expected because it was challenging for experts to draw direct connections

between learning theories, instructional design theory, and the influence of those on the CoI.

- There are a significant number of issues the designer needs to consider prior to beginning the design process (e.g., safety, technology).

Self-Assessment

Initially, it was assumed that if the transcription was completed by the researcher, it would provide greater insight into the creation of the work products. This was a faulty assumption, and after approximately four weeks, the researcher outsourced the creation of the interview transcripts to a third party as described in the previous section. The delay in attempting to create the transcripts set the entire project behind schedule and caused a great deal of frustration and concern over the accuracy of the transcripts. Once the decision was made to outsource the transcription, the project continued, and the analysis of the transcripts was conducted. The transcription company was able to turn around the initial audio files in a Microsoft Word format within 3 days of receipt.

Another valuable lesson learned from the analysis of the transcript was to begin with a high-level review of each of the three interview transcripts. Once completed, a more in-depth analysis of each of the interviews (e.g., interview one) was conducted across all interview participants. The result was that themes began to emerge across each of the interview types, and the ability to analyze and categorize the themes for each of the types of interviews was the most productive aspect of the process.

Building a detailed outline of both the Guide and the Job Aid following the analysis of the interview transcripts was also critical to the successful development of the work products. The outline of the Guide and Job Aid using the analysis techniques

derived from Seidman (2006) was instrumental in communicating the initial results with the researcher's dissertation chair prior to full development of the Guide and Job Aid. The detailed outline allowed for assessment of not only the content but also the sequencing and flow of the content.

Phase Three Summary

The purpose of phase three was to develop the work products that evolved out of the phenomenological interviews. The transcripts created in phase two were reviewed, analyzed, and categorized, resulting in the creation of a Guide, Job Aid, and the Design Framework. These documents were then used during phase four of the study to validate the Guide and Job Aid via a Delphi Study.

Phase 4: Validation of the Guide and Job Aid

The purpose of phase four was to validate the work products developed as part of phase three. A Delphi study was used for this phase. Tracey (2001) conducted a Delphi study to validate a Multiple Intelligences (MI) Design Model, and her process acted as a guide or model for the internal validation of the CoI Instructional Strategies and Activities Guide and Job Aid, each of which contained the CoI Design Framework. The internal validation provided a level of confidence in the work products to ensure that the goal of the study was achieved and that practitioners would benefit from using both the Guide and Job Aid.

Population and Sample

As part of the Delphi study, a panel of subject matter experts (SMEs) was identified to validate the work products developed following the phenomenological interview phase. The goal in creating the panel was to include a balance of expertise

between instructional design and development and the CoI framework. Prior to the start of the Delphi study, six participants agreed to be part of the Delphi panel. Once participants were identified, they were provided with details on the upcoming study and their role in the study (see Appendix H).

After the initial communication on the details of the study was sent, one of the six participants opted out due to time constraints. Another participant had to drop from the study due to personal issues. Another participant, who was traveling abroad, attempted to participate; however, international travel demands and Internet connectivity issues caused long delays in the panel member being able to respond accordingly. This participant was only able to provide feedback in one of the three rounds of the Delphi study. Three of the six panel members remained and provided in-depth feedback in each of the three rounds. The members of the Delphi panel had a mix of expertise in both instructional design and the CoI framework. Even though the panel only included three members, the backgrounds of the participants provided a balanced perspective of both instructional design and CoI expertise. In addition, the amount of feedback provided in each of the three rounds of the study was comprehensive.

Procedures for Round One: Delphi Study

The round one procedure included a packet of information sent via email to each of the SMEs. The packet contained both the CoI Instructional Strategies and Activities Guide and the CoI Instructional Strategies and Activities Job Aid. In addition to the Guide and Job Aid, a document was included that provided instructions and a list of questions participants were asked to respond to within a two-week timeframe.

In order to complete feedback for round one, participants were asked to respond to a series of open-ended questions. These questions asked how participants would amend or clarify each of the sections contained as part of the Guide and Job Aid. Participants were given several options to provide feedback including the ability to provide audio feedback if desired. Refer to Appendix I for the detailed information provided to Delphi study participants for Round 1 of the study. The following is a list of questions.

Delphi Panel Round One: CoI Instructional Strategies and Activities Guide Questions

1. How would you amend or clarify the CoI Instructional Strategies and Activities Guide?
2. How would you amend or clarify Section 1: CoI Primer (as outlined in the guide)?
3. How would you amend or clarify Section 2: How Life Experiences Affect Designing for the CoI?
4. How would you amend or clarify Section 3: The ID Practitioner?
5. How would you amend or clarify Section 4: Advice to Instructional Designers Using the CoI?
6. How would you amend or clarify Section 5: The importance of Theory in Designing for the CoI?
7. How would you amend or clarify Section 6: Instructional Strategies and Activities?
8. How would you amend or clarify Section 7: How the CoI Informs Design?

9. How would you amend or clarify Section 8: Using the CoI as a Design Process?
10. How would you amend or clarify Section 9: Selecting Appropriate Instructional Strategies and Activities?
11. How would you amend or clarify Section 10: The Need for Additional Research?
12. Following your review of the guide, what area(s) do you recommend the most focus on during revisions?

CoI Instructional Strategies and Activities Job Aid Review

Delphi Panel Round One: Instructional Strategies and Activities Job Aid Questions

1. How would you amend or clarify the CoI Instructional Strategies and Activities Job Aid?
2. How would you amend or clarify Section 1: The Community of Inquiry Overview?
3. How would you amend or clarify Section 2: The CoI Design System?
4. How would you amend or clarify Section 3: CoI Survey and Instructional Strategies and Activities?
5. Following your review of the CoI Instructional Strategies and Activities Job Aid, what area(s) do you recommend the most focus on during revisions?

Analysis and Results of Round One

All feedback from round one of the Delphi panel was provided electronically. In order to categorize it, the researcher used a process for identifying feedback provided by each panel member for each section of the Guide and Job Aid. This process used to

gather and analyze feedback was referred to as the Document of Resolution (DoR). The intent of the DoR was to provide clarity and visibility to areas of the work products with the greatest need for improvements.

Similar to Tracey (2001), feedback from the Delphi panel members was organized and grouped based on the structure of both the Guide and Job Aid as part of the DoR. After the DoR was completed, the researcher identified the major areas of the Guide and Job Aid that needed to be updated. The researcher also responded to each category of feedback as part of the DoR. See Appendix J for examples of the DoR for Round One. The purpose of providing this level of detail is to offer an example for future potential Delphi panel studies to use and improve upon. The literature review on the topic of Delphi panels provided ample information on the conceptual aspects of the process including guidance around the number of participants, structure, etc. However, the literature was lacking in terms of specifics on how to aggregate, categorize, and prioritize the feedback from a Delphi panel.

The major categories of improvements of the work products identified as part of the analysis of comments from the Delphi panel included (1) Additions to the Guide and Job Aid (2) Areas of the Guide and Job Aid that required clarity, and (3) Sequence and flow recommendations for both the Guide and Job Aid. Examples of some of the areas that need to be addressed from Round One of the Delphi study included the following:

- The PIM is not linear – as a learner/designer, sequential progression through the PIM (i.e., start with Triggering, move to Exploration, Integration, and then Resolution) is not required.

- The link between theory (both learning theory and instructional design theory) is nebulous, and although there is significant influence on how the expert viewed the world through these dimensions, direct connection between these concepts and how to design for the CoI was lacking.
- The CoI survey is not a design tool and is heavily focused on the perspective of the teacher.
- Discussion on whether to combine the Guide and Job Aid into one document.
- Discussion on the validity of linking the CoI Survey to instructional strategies and activities.
- The recommendation to include reflection questions after each section in the Guide.

Several comments from one of the Delphi panel members required additional clarification. The researcher was able to contact the Delphi panel member and have a brief discussion regarding the comments, which enabled the researcher to incorporate the intent of the comments into the next version of the Guide and the Job Aid. This was a critical step in building a relationship with this particular Delphi panel member who then felt the comments were heard and confident in providing future feedback.

Procedures for Round Two: Delphi Study

After making revisions to both the Guide and Job Aid, the next procedure was to send out information for the second round of the Delphi study. A packet of information delivered via email included the DoR to provide detailed information for panel members on the feedback from round one as well as the response to the feedback. In addition, documents containing the instructions for the round two assessment and the updated

Guide and Job Aid were included. Participants were given 2 weeks to respond to the questions.

The second round assessment of the Delphi study included a series of questions using a Likert scale (strongly disagree, disagree, agree, and strongly agree) for both the Guide and Job Aid. In addition to the Likert scale, participants were allowed to provide open-ended comments if desired. Of the eight questions asked regarding the Guide, all questions achieved a response of agree or strongly agree. Six of the eight questions achieved a majority (two out of three) of responses in the strongly agree category; two of the eight questions receiving a majority of responses in the agree category. Focus was applied to identifying how the Guide could be modified and to address the two questions that received a majority of responses in the agree category. For those items achieving consensus with a response of strongly agree, no further changes were made.

The second round assessment of the Job Aid contained five questions. Four of the five questions achieved a response of strongly agree which resulted in no changes to the Job Aid. One of the questions that received consensus of strongly agree was determined to be important enough based on the feedback from one of the members of the Delphi panel to request additional information and insight from the rest of the panel members. A brief email explaining the feedback on the question was provided along with a potential resolution. Participants were asked if they agreed to the resolution and could support the change requested by one of the Delphi panel members. Feedback was received, and the resolution was implemented as part of the final work product in preparation for round three of the study. See Appendix K for an example of the consolidated feedback from round two of the Delphi study for both the Guide and Job Aid.

Analysis and Results of Round Two

The feedback as part of round two was intended to be more focused than the open-ended response questions in round one based on the use of the Likert scale. In addition to the structure of providing feedback in round two, the researcher felt that the DoR was an effective tool for communicating the changes made between round one and two. Ultimately, round two resulted in less feedback partly due to the depth and clarity of the feedback in round one and the response to that feedback as documented in the DoR.

General feedback on the changes in round two were favorable. Many of the open-ended comments articulated that the Delphi panel members saw great improvement in the revised documents. The revision of the sequence and flow of the documents provided greater clarity for the panelists, along with the use of reflection questions throughout each of the sections contained in the Guide. The one major area of feedback that required a pulse of the panel prior to making the change was in revising the Job Aid to demonstrate the linkage of the instructional strategies and activities to the CoI indicators. Originally, the linkage to the strategies and activities had the appearance of being tied to the CoI Survey. However, one of the panelists communicated that this perception could potentially mislead practitioners in only using the CoI survey as the design tool. This interpretation was not the intent of the Job Aid. The Delphi panel was presented with a brief discussion of the recommended change and a majority of panel members recommended moving forward. One panelist did not respond due to travel commitments.

Procedure Three: Round Three of the Delphi Study

The last procedure for the Delphi study was to provide a final packet of information to each of the panel participants with revisions based on round two feedback.

The final round of the study lasted 3 weeks due to the Fourth of July holiday as well as a miscommunication with one of the panel participants. The packet for the final round contained an executive summary of the feedback from round two as well as the revised Guide and Job Aid. For the third round of the Delphi study, participants were asked whether they agreed or disagreed with the following statement: "The information contained as part of the Community of Inquiry (CoI) Instructional Strategies and Activities Guide and Job Aid support instructional design practitioners in designing for the community of inquiry." Participants were asked to respond with either *yes* (agree) or *no* (disagree). All three of the Delphi panel members responded yes, and the Delphi study concluded.

Analysis and Results of Round Three

The results of round three demonstrated the internal validity of the Guide and Job Aid. One participant asked that two changes be made to the Job Aid. These changes were style changes (e.g. where to place the references in the mapping of indicators to instructional strategies) – not content changes.

Self-Assessment

Round one of the Delphi study proved to be the most influential of the three rounds. This round required the greatest investment of time by the Delphi panel members and the researcher. The results of the feedback from round one were incredibly rich and provided the most complete insight into each of the panelist's perspective on what needed to be modified. The DoR was useful in providing transparency and visibility to the areas of the document requiring the greatest amount of change. In addition, the DoR acted as an excellent communication tool for round two.

Participants invested a great deal of time in providing feedback during round one, and the use of the DoR was critical in communicating with panelists. The DoR acted as a way to easily provide feedback that could be reviewed by participants. The feedback from round two was better than expected; however, the researcher realized that several questions were poorly written. For example, a question in the Guide asked "Each Section Provides Complete Information." The comment from one participant stated that "…'complete' would require much more depth that really isn't necessary at this point." More careful attention to the questions asked as part of round two would have provided clarity to the panelists and may have potentially resulted in more prescriptive, open-ended feedback.

Phase Four Summary

The purpose of phase four was to validate the CoI Instructional Strategies and Activities Guide and Job Aid. This phase included a Delphi study comprised of three participants completing three rounds of the study. The result was an internally validated Guide and Job Aid to be used by practitioners designing instruction in building a community of inquiry.

Summary of Results

This chapter described the results of the four phases of the study. Phase one described the literature review. Phase two went into detail on the instructional design practitioner interviews. Phase three explored the process of turning the interview transcript data into the CoI Guide, Job Aid, and Design Framework. Phase four explained the process used to validate the Guide, Job Aid, and Design Framework.

Chapter 5

Conclusions, Implications, Recommendations, and Summary

This chapter presents the conclusions that resulted from the four-phase design and development process used to create and validate the CoI Instructional Strategies and Activities Guide, Job Aid, and Design Framework. Strengths and limitations that surfaced once the study was underway are also discussed. The implications of this research and its contributions to the instructional design and development body of knowledge and professional practice are shared, with particular emphasis on how the investigation helped to bridge the theory-practice gap. Recommendations for future research are also offered. The chapter ends with several concluding thoughts aimed at providing insight-from the experts-into the significance of work that attempts to connect the theoretical research and practitioner perspectives.

Conclusions

The goal was to provide instructional design and development (IDD) practitioners concrete instructional strategies and activities that inform the CoI framework and that can be used in the design and development of an effective online community of inquiry. Using a design and development research design and various qualitative methods, the design, development, and validation of three distinct products resulted. These products include: the CoI Instructional Strategies and Activities Guide, Job Aid, and Design Framework. These products and the result of this investigation are significant because, combined, they bring researchers and practitioners closer to bridging the gap between the

CoI (how learning occurs) and instructional design theory (prescribes methods to facilitate learning in specific situations) (Reigeluth, 1999).

Strengths and Limitations

Strengths and limitations surfaced once the research was underway. Specifically, one of the strengths was the inclusion of phenomenological interviews with instructional design experts. The three-phase interview method described by Seidman (2006) was particularly useful in collecting rich, descriptive data about how instructional design practitioners actually use learning theory, instructional design theory, and the CoI in their everyday design work. The phenomenological interview process and structure enabled expert designers to tell their story – the story of how they design and create a community of inquiry.

Included in the interviews were stories with more concrete examples of instructional strategies and activities, providing the basis for large parts of the CoI Instructional Strategies and Activities Guide and Job Aid. In addition to the concrete elements described as part of each expert's story came the more subtle and abstract aspects of designing and creating a community of inquiry.

The more subtle, abstract aspects uncovered as part of the interview process are what holds the entire process of designing for the CoI together and a roadmap for other designers to be able to understand their own experience in the context of how an expert approaches designing for the CoI. The beauty and power of the phenomenological interview process is exploring each expert's path towards becoming an expert designer in designing for the CoI. The value of the interview process was in identifying both the similarities and differences in how they approach creating an online community of

inquiry. The result of the stories told as part of the interview process was the creation of the CoI Design Framework. This framework provides context for future IDDs to better understand how their own stories and experiences can be used in creating an online community of inquiry.

A second strength was the Delphi process used to internally validate the products. The Guide, Job Aid, and Design Framework were revised significantly after round one of the Delphi study, and minor changes were made as part of round two of the study. The internal validation of the work products was an important part of the study because it demonstrates the credibility of each of the outputs.

A third strength is the work products themselves. Through a systematic process, three useful products were created. These products were not only designed based on the current research literature but also the content was also influenced by working professionals in the field and validated by published researchers on the CoI.

While qualitative research approaches offer advantages in the ability to collect descriptive and detailed data about people's lived experiences, there are also limitations. One limitation was the researcher's expertise in collecting and analyzing qualitative data. Although there are many books and templates that guide novice researchers in various research approaches, they do not trump experience. The final result of using Seidman's (2006) recommendations to analyze interview transcripts was incredibly useful and pragmatic, resulting in a quality output. The researcher; however, felt that using one method may have delayed the coding process and caused the researcher to second guess the approach and process. The challenge with the bracketing process in reviewing the interviews was in the opportunity to understand alternative approaches to coding

qualitative data and ensuring that a rigorous process was followed. Using resources in addition to Seidman's approach should have been taken into consideration.

One example that could have provided the researcher with greater confidence in coding is Saldana's (2009) work *The Coding Manual for Qualitative Researchers,* a manual that describes a number of coding methods and examples. If the researcher had identified Saldana's work, in combination with the work by Seidman, the researcher's level of confidence in coding the interview transcripts, may have increased significantly. Saldana explains that *The Coding Manual for Qualitative Researchers "*focuses exclusively on codes and coding and how they play a role in the qualitative data analytic process" (p. 1). In retrospect, the researcher should have used multiple resources and reviewed more qualitative coding methods as part of preparation to analyze the transcripts from phase two.

Second, as described in Chapter 4, it was a challenge to define the criteria identifying an expert with both IDD and CoI experience and then find individuals matching the criteria and who were willing to participate in the series of interviews. Although there are many individuals and organizations using and publishing research regarding the CoI, some of these experts were not able to commit to the time required to participate in the phenomenological interviews. In addition, some experts questioned whether they were or should be considered design experts. Providing more clarification around each criterion might have aided experts in identifying themselves as such. Also, three of the four people interviewed in phase two were from the same institution. Perhaps greater diversity of the expert designers would have resulted in a broader description of how the CoI is used in higher education.

A third limitation pertains to the CoI Design Framework and its validation. The intent behind the CoI Design Framework was to provide practitioners with insights into how their journey to becoming designers could support creating a community of inquiry. One of the limitations of phase three included not providing more detailed information on how to support IDDs in translating the design framework into something that could be used as context for an IDD to reflect on and use as part of his or her design process. While the CoI Design Framework was validated as part of both the Guide and Job Aid, it should have also been validated as an independent element so that, during the Delphi study, the experts could have provided more direct and focused feedback to improve the CoI Design Framework.

Finally, the Guide and Job Aid were developed for two primary IDD audiences-experienced and non-experienced IDDs. The Job Aid included a high-level CoI overview and the Guide a more detailed CoI primer. The Delphi panel members felt that each of these documents was valuable as part of the final validated outputs in support of both experienced and inexperienced IDDs. In determining the critical elements of the literature to include as part of the overview and primer, it was challenging to identify the appropriate amount of literature that supported but did not overwhelm the practitioner. In making these consumption choices (due to the amount of the literature), critical research may have been unintentionally left out of the work products.

Suggestions for the CoI Instructional Strategies and Activities Guide and Job Aid

The primary suggestion is to conduct research on practitioners' experience in using the Guide and Job Aid in designing for a community of inquiry. While this study resulted in a validated Guide, Job Aid, and Design Framework, testing each of these work

products with practitioners as they use them to design a community of inquiry is an important next step. A study that evaluates the use of these work products by practitioners allows for further input and revisions in developing a more robust set of tools for design practitioners to use in developing a community of inquiry.

Implications

There are many contributions from this work that can be offered to researchers and practitioners in the field of instructional design and development. As described, these products and the result of this investigation bring researchers and practitioners closer to bridging the gap between descriptive theory and prescriptive practice. Specifically, these contributions are (1) an examination of how IDD practitioners approach their design and development activities related to creating a community of inquiry; specifically, the types of instructional strategies and activities used to impact one or more of the CoI presences; (2) a better understanding of how the IDD practitioner identifies and selects instructional strategies and activities; (3) a bridge between the theory elements of the CoI framework and the practice of employing the CoI in higher education institutions; (4) a starting point for supporting ongoing development of IDD practitioners who want to use the CoI as part of their design process in creating a community of inquiry; (5) a support structure for faculty members/teachers wishing to use the CoI also benefit from the results of this study and provide concrete instructional strategies and activities supporting the creation of a community of inquiry; and (6) the development of the Guide, Job Aid, and Design Framework provides context and additional guidance to practitioners, enabling them to both design and implement instructional strategies and activities as part of their online course.

During the interview process, exploration into the types of resources available for practitioners-similar to what was developed as part of the study-was discussed. Participants responded that, to their knowledge, the work products being recommended was not in existence. One participant did state that one institution developed a program to engage its faculty/instructors to educate them on the CoI as part of an onboarding (orientation) process. This program was identified as being part of (SUNY) State University of New York and one expert stated that "...the SUNY Learning Network already has it and they've done it really well". The SUNY program was described as being very successful at training new faculty in navigating, facilitating, and developing a community of inquiry. It is anticipated that other institutions and individuals have deep knowledge and experience in designing and developing using the CoI.

Three primary implications of future research are discussed here. First is the need to continue to understand the measurable impact of specific instructional strategies and activities on the depth of learning. Second is the need to continue bridging the gap between research and theory in supporting the practitioner in creating a community of inquiry. Third is the importance of continuing to understand the designer's perspective on designing for the CoI and how additional research on the CoI Design Framework may provide additional value to the practitioner by continuing to validate it as a way to understand design decisions – particularly in the selection and incorporation of instructional strategies and activities aimed at supporting the CoI presences.

Implications for future research include continuing to identify and understand the impact of various instructional strategies on each of the three presences and the overall learning experience. The best example of this found in the research was the work

completed by Richardson and Ice (2010). In their study, the authors used specific instructional strategies and coded the results of the discourse as it applied to the Practical Inquiry Model. Research exploring the impact of specific instructional strategies and activities needs to be carried forward to examine other instructional strategies and activities and the contexts in which they may provide deeper levels of learning as evidenced through the PIM (e.g., integration and resolution). The challenge with the current method is the time-consuming aspect of coding student responses to determine at which stage of the PIM the discourse is achieved. Research to identify new methods or processes to more efficiently identify the effectiveness instructional strategies needs to be conducted.

Another implication for future research is focusing on continuing to bridge the gap between research and practice through additional resources for the practitioner. The CoI has been described as a constructivist framework with the implication that the environment created is less prescriptive. The fundamental nature of constructivist theory implies a much more open-ended environment where participants (i.e., learners) are responsible for the construction of their knowledge. This is in conflict with an IDD perspective in which design is seen as a more prescriptive approach. One of the members of the Delphi panel clearly understood the implications of the CoI as a constructivist framework and helped to educate the researcher on the implications for IDDs who want to design for the CoI. The Delphi panel expert explained the use of the indicators in being a cornerstone for designing for the CoI and for assisting both the designer and teacher in selecting appropriate instructional strategies and activities while maintaining a constructivist approach towards design.

Similar to Yanchar et al. (2010), this study demonstrated the challenge with IDs in translating theory to practice. The authors identified three meta-themes describing the interaction between IDs and theory, with one of them being that IDs struggle with operationalizing formal learning theories. The gap between theory and practice related to designing for the CoI needs to be examined further. In order for the CoI to become a more widely adapted and adopted framework from a design perspective and to advance the knowledge of both IDDs and teachers in using instructional strategies and activities in helping to create a community of inquiry, additional work needs to be explored to enable designers to translate theory to practice.

The CoI Design Framework was developed as a result of the series of phenomenological interviews and validated as part of the process for validating the Guide and Job Aid. The Design Framework is a critical element in practitioners' understanding the impact and influence of learning theory, instructional design theory, life/design experiences, and instructional strategies and activities in designing for a community of inquiry. In reflecting on the Delphi study, there should have been more focus placed on validating the Design Framework as an independent element. Allowing the Delphi panel to provide more focused and direct opportunities to comment, assess, and validate the Design Framework independent of the Guide and Job Aid could have resulted in more actionable feedback, resulting in an improved Design Framework.

Recommendations

Emerging from this study are recommendations and future research questions to consider. The first research question emerging from the study is how useful is the CoI Instructional Strategies and Activities Guide, Job Aid, and Design Framework in

supporting practitioners in creating a community of inquiry? In order to answer this question, it is recommended to study the use of the Guide, Job Aid, and Design Framework by IDD practitioners; both experienced and inexperienced in creating a community of inquiry. The step of internally validating each of the work products via the Delphi study was a critical first step. What is important next is to validate the use of the Guide, Job Aid, and Design Framework in real-world settings with IDD practitioners either responsible for developing a community of inquiry or for supporting and working with faculty in the creation of an online community of inquiry. It is essential to determine the effectiveness of each of the work products in support of the original goal. Validating the Guide, Job Aid, and Design Framework in a real-world setting would support a process of improvement by collecting feedback and input on how each of the work products could be further improved and made more useful for the IDD practitioners.

A second research question that arose as a result of the study is how can the Guide, Job Aid, and Design Framework support those teaching online? The recommendation is to validate the Guide, Job Aid, and Design Framework with a revised target audience – specifically, faculty and staff (who may or may not have exposure and experience with the CoI framework) responsible for teaching in an online environment and creating a community of inquiry. Researchers in this area would examine how faculty, who are responsible for teaching in online environments but who do not have the support of either an instructional design group to aid them in designing and creating a community of inquiry, would make use of the Guide, Job Aid, and Design Framework. The original validation goal was focused on IDD practitioners; however, the research questions were developed from a broader perspective to include both IDD practitioners

and instructors – those teaching in an online environment responsible for facilitating the creation of an online community of inquiry.

A third research question emanating from this study is how can constructivist and social constructivist learning theory can be translated to support the design of a community of inquiry? The recommendation is to continue to close the gap between constructivist learning theory and the practice of using the CoI framework in design and development efforts. Throughout the series of interviews with the experts, it was not clear how constructivism as a learning theory clearly supported the CoI framework, which is described by Garrison et al. (2000) as a constructivist framework. Exploration of how constructivism and social constructivism theory could be used to better inform both IDD practitioners as well as those responsible for teaching online in translating theory to practice could better support the CoI framework and development of each of the three presences throughout the learning experience.

The next question that came into view is how can IDDs share best practices in designing for a community of inquiry? Developing a community of practice (CoP) to share knowledge from an IDD perspective in using the CoI is the fourth recommendation. There is a great amount of research on the CoI and a number of IDD practitioners who could benefit from using the CoI as part of the design or implementation of their online learning experience. Bridging the gap between theory and practice through the experience of others in creating a community of inquiry could support more effective use of both the framework and the types of instructional strategies and activities used to impact one or more of the three CoI presences (teaching, social, and cognitive). In addition, the CoP could be used to identify best practices that could be shared across

institutions and roles in employing the CoI framework as well as the Guide, Job Aid, and Design Framework.

The final research question that became apparent is what environments are the most suitable in using the CoI framework compared to other theoretical frameworks? The recommendation is to provide guidance, both theoretical and practical, to support designers (or faculty members/teachers) in identifying environments conducive to the use of the CoI framework versus other frameworks. As part of the series of phenomenological interviews and in several comments from Delphi panel participants, the CoI can be used as elements of a course or curriculum to support specific course outcomes or learning objectives, while other course outcomes and learning objectives may be better supported by other potential theoretical frameworks. There is limited published research that discusses environments or scenarios where the CoI would be most effective.

Summary

The goal was to provide practitioners of instructional design and development (IDD) concrete instructional strategies and activities that inform the CoI framework and that can be used in the design and development of an effective online community of inquiry. The research questions addressed as part of the study included (1) how can the study of instructional design theory and models inform the CoI framework, (2) what existing instructional design and development theories and models guide designers and instructors on implementing the CoI framework, (3) what instructional strategies and activities support the CoI framework, and (4) given the CoI framework, what

instructional strategies and activities are needed to guide practitioners in creating online communities of inquiry?

In order to achieve the goal and respond to the research questions, the study involved four separate research phases. The methods for each phase are described in Chapter 3, and the results for each phase are described in Chapter 4. The study included:

1. Phase one, the literature review, was used to identify instructional strategies and activities used in the support of the CoI framework or as supporting the development of one or more of the three CoI presences (cognitive presence, social presence, and teaching presence). The results of the literature review were used to inform the instructional design practitioner interviews in phase two.
2. Phase two was comprised of instructional design practitioner interviews that were conducted with four IDD experts – three of the experts had extensive background and experience in designing with the CoI framework. A series of three interviews comprised the phenomenological interviews conducted with each of the IDD experts. The first interview examined the experts' life histories and the paths that took them to becoming instructional designers. The second interview focused on details of the experience in designing for the CoI, including the types of instructional strategies and activities used to create an online community of inquiry and to impact one of the three presences. The third interview asked participants to reflect and to make meaning based on the context of the first two interviews, to address what Seidman (2006) describes as "the intellectual and emotional connection between the participants' work

and life" (p. 18). The results of the interviews were used in the next phase of the study in developing work products supporting practitioners designing instruction using the CoI.

3. Phase three focused on the development of the CoI Instructional Strategies and Activities Guide, Job Aid, and the CoI Design Framework. Information collected and analyzed in phase one (the literature review) and phase two (instructional design practitioner interviews) was used to develop the work products to support practitioners in creating an online community of inquiry. The development of the three work products was then validated through a Delphi study of experts in both IDD and the CoI in phase four.
4. Phase four concluded the study through the validation of the CoI Instructional Strategies and Activities Guide and Job Aid. Using a three-round Delphi study comprised of three experts in both IDD and the CoI framework, the Guide, Job Aid, and Design Framework were validated as supporting practitioners in designing for the CoI.

This research is important in continuing to support IDD practitioners and faculty/teachers responsible for developing an online community of inquiry. Much of the focus of the research on the CoI framework involves the measurement of each of the three presences ex post-facto-after the class concludes, and provides insight primarily from the perspective of the instructor or teacher through the CoI Survey. The CoI Instructional Strategies and Activities Guide, Job Aid, and the CoI Design Framework enable a proactive approach to understanding the CoI framework and the types of

instructional strategies that can be employed to positively impact one of the three CoI presences – cognitive, social, or teaching.

Concluding Thoughts

In some of the earliest stages of research, Garrison et al. (2000), pointed to the importance of "determining how best to design and conduct a computer conference for the purposes of meaningful and worthwhile learning outcomes" (p. 97). After a decade following the emergence of the CoI framework, researchers are still highlighting the need and importance of design in creating an online community of inquiry. The CoI Instructional Strategies and Activities Guide, Job Aid, and Design Framework were created to support IDDs in developing an effective learning experience using the CoI framework as a backdrop for design and development activities.

The CoI Instructional Strategies and Activities Guide, Job Aid, and Design Framework are envisioned as three of many potential tools that can support both IDD practitioners as well as instructors / teachers of online learning. Continuing the traditional research on the CoI (e.g., continuing to understand each of the three presences individually as well as holistically, continued use and evaluation of the CoI survey) are all incredibly important in supporting the understanding of the value of the CoI framework. To extend the value of the framework means that future research needs to continue to support bridging the gap between research and practice. Future research needs to focus on supporting the IDD practitioner in the creation of a community of inquiry throughout the design, development, and facilitation of learning experiences.

Appendix A

The Community of Inquiry (CoI) Instructional Strategies and Activities Guide

Community of Inquiry (CoI)

Instructional Strategies and Activities Guide

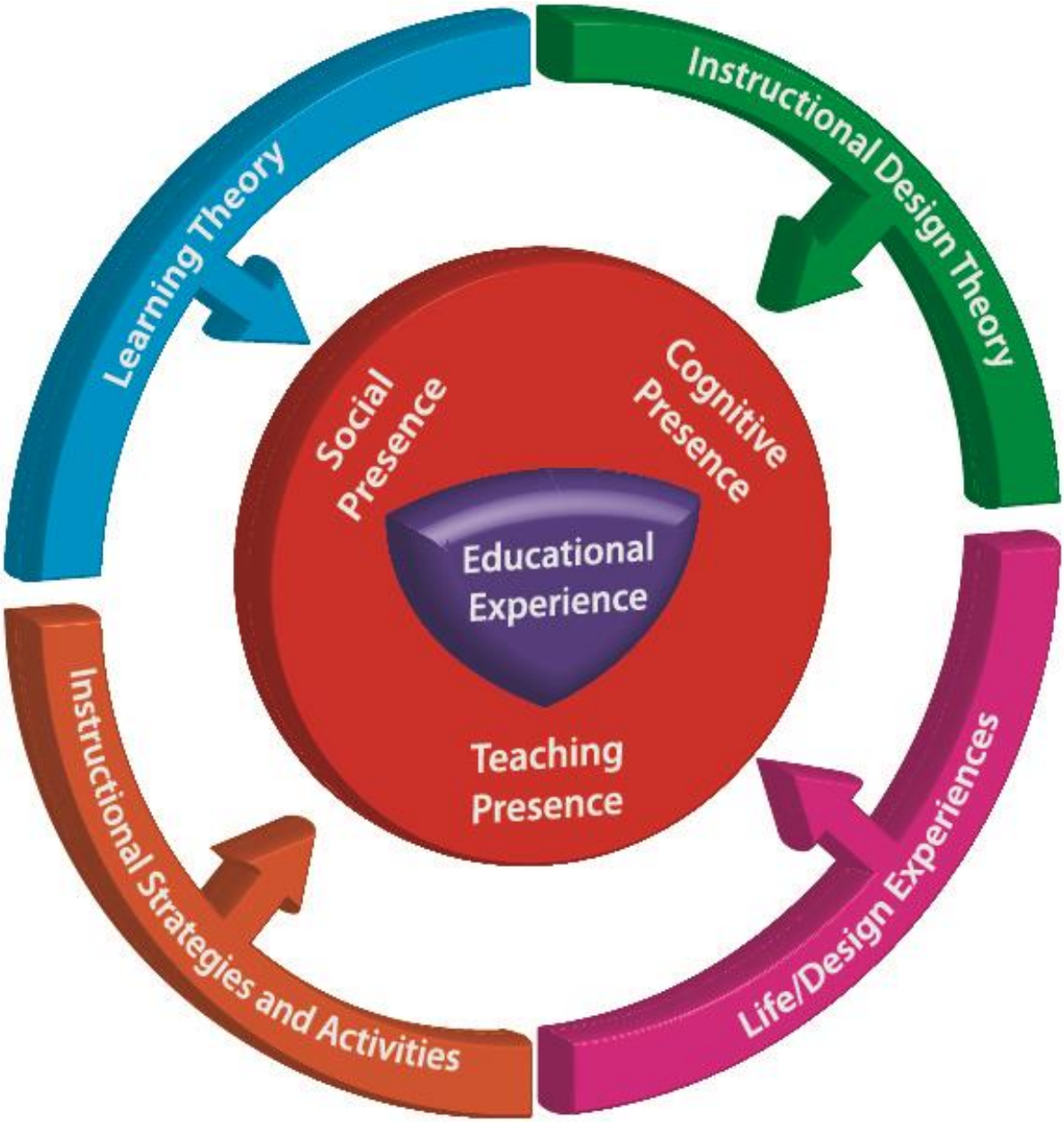


Table of Contents

Acknowledgments 138
Community of Inquiry Guide Overview 139
- Community of Inquiry Instructional Strategies and Activities Goal 139
- Audience 139
- Resources 139
- Validation 139
- Limitations 140
- CoI Instructional Strategies and Activities Guide Structure 140
- Expert Practitioner Profiles 140
- Expert Practitioner Quotes 141
- Acronym Definitions 141

Section 1: Community of Inquiry Primer 142
- Cognitive Presence 143
- Deconstructing the PIM 144
- Cognitive Presence from the Practitioner's Perspective 148
- Social Presence 149
- Social Presence from the Practitioner's Perspective 152
- Teaching Presence 153
- Teaching Presence from the Practitioner's Perspective 154
- CoI Indicators 155
- The CoI Survey 156
- CoI Primer Summary 159
- Section 1 Reflection Questions 159

Section 2: The CoI Design Framework 160
- Section 2 Reflection Questions 163

Section 3: The Importance of Theory in Designing for the CoI 164
- How Theory Influences Design 166
- Conclusion on the Importance of Theory in Designing for the CoI 166
- Section 3 Reflection Questions 166

Section 4: Things to consider before you start designing 167
- Intent of Using the CoI: A Designer's Perspective 167
- Safety as a Priority 167
- Technology Awareness 167
- Balancing Delivery, Evaluation and Relevant Instructional Strategies and Activities 168
- Experimentation 168
- Expanding the Learning Real Estate 168

Online vs. Face-to-Face – Does it Really Matter? 168
What Teaching Presence Is and Is Not 169
Don't be Held Hostage by your LMS 169
Guiding Language for Instructors 170
Expectations for Students 170
Advice on Course Structure 170
Start by Building a Community 171
Breaking Down the Presences 171
Design Principles Supporting Social and Cognitive Presence 172
The CoI Survey 172
Using the CoI Survey in the Design Process 174
Limitations of Using the CoI Survey as a Design Tool 175
Assessing Pre-Existing Content 176
Designing Instruction that Will be Delivered by Someone Else 176
Section 4 Reflection Questions 178
Section 5: Instructional Strategies and Activities 179
Instructional Strategy Elements 179
Practitioner Perspectives on Instructional Strategies 180
Examples of Instructional Strategies used with the CoI 180
Knowing your Learning Technology Environment 181
Using Consistency and Course Structure to Enable Creativity 181
Course Information Documents 181
Sample Course Structure 182
Setting Expectations 183
Considering Multiple Learning Styles 184
Google Maps 184
Wordles 184
Book-Ends (i.e. Scaffolding) 184
Student-Synthesized Discussion Threads 185
Provide Additional Learning Opportunities 185
Learning Check Points 185
Scenario-Based Learning 186
Audio 186
Personal Narratives 187
LinkedIn 187
Social Media Technology and the Virtual Hallway 187
The Virtual Hallway 188
Students Only: Course Discussion Forum 188
Synchronous Instructional Strategies 188

Collecting Instructional Strategies and Activities 188
Instructional Strategies and Activities Summary 189
Section 6: Using the CoI to Inform Design 190
The CoI Context and Mindset 190
The CoI as a Design Map 190
Where Does Design Start – Social, Cognitive or Teaching Presence? 191
Section 7: Resources for Practitioners 193
Resource 1: The CoI Instructional Strategies and Activities Guide 193
Resource 2: The CoI Instructional Strategies and Activities Job Aid 193
Resource 3: Formal Organizations to Extend CoI Knowledge 193
How to Provide Feedback on the Guide 193
Appendix A: The ID Practitioner 194
Additional Readings & References 196

Acknowledgments

I would like to thank several groups for their involvement in the creation and validation of this guide. The first group I would like to acknowledge and thank is a small group of instructional designers. These experts participated in a series of three phenomenological interviews - a significant investment of their time - to share their expertise. Their individual and collective experiences have shaped this guide, and throughout the process have taught me a great deal.

The second group of individuals includes members of the Delphi panel study. Members of this study included experts from both the Community of Inquiry as well as Instructional Design Expertise. The Delphi panel took the initial outputs created using the interview data and the literature review and through a series of three rounds of a Delphi study have provided input and validated this guide. Through the panel's dedication, support and critical feedback, this guide has been revised to better support practitioners seeking to impact online learning environments using the CoI as a framework as part of their design efforts.

Finally, I want to thank my dissertation chair and committee for their dedication and support to completing this effort. My chair, Dr. Martha Snyder, and committee members Drs. Laurie Dringus and Ling Wang. Thank you for all of your guidance and feedback throughout this process. I am grateful for your commitment to my education and for the learning that has occurred along the journey!

Community of Inquiry Guide Overview

Community of Inquiry Instructional Strategies and Activities Goal

The goal of the Community of Inquiry (CoI) Instructional Strategies and Activities Guide is to provide instructional design practitioners a guide to support the development of online learning using the CoI framework as a backdrop for design and development activities. Specifically, the efforts contained in this guide are focused on helping both new and experienced instructional design (ID) practitioners in designing and developing for the CoI.

Audience

This guide is for instructional design practitioners seeking support in designing learning experiences for online learning or blended learning environments. The level of knowledge regarding the CoI needed to use this guide is minimal as this guide provides an introduction to the CoI. For those with more exposure and experience with the CoI, this guide will provide insights into how expert instructional designers think about designing for the CoI framework.

Resources

This guide was primarily developed through a series of phenomenological interviews with four expert instructional designers and a review of CoI literature. The interview process called upon experts in online learning with significant backgrounds in online instructional design. In addition, three of the four designers had significant experience designing instruction using the CoI framework. Where appropriate, literature is introduced to reinforce or provide emphasis on specific points.

Validation

The CoI Instructional Strategies Guide has undergone a rigorous internal validation process. A Delphi panel was assembled and a three-round study was conducted as a part of the validation of this guide. Experts in the ID field and the CoI participated in three rounds of the Delphi study and provided input and feedback throughout each of the rounds. Feedback gathered through each round of the Delphi study was collected and incorporated as revisions to the guide.

One of the challenges in forming the Delphi panel was determining the mix of expertise. After careful consideration, the decision was made to convene a Delphi panel that contained a mix of expertise. The goal was to have a mix of members with expertise in the CoI framework and expertise in instructional

designer. This was done, in part, to test the goal of the guide and job aid–to provide instructional design practitioners a guide to support the development of online learning using the CoI framework. The purpose of the Delphi study was twofold. First, to validate, from the perspective of CoI experts, that the guide was accurate and provided value to the existing research base. Second, the targeted audience for this guide was brought in as part of the Delphi panel to ensure the guide would be useful to designers with a limited background with the CoI.

Limitations

This guide is a first attempt to support practitioners in the design and development of online learning using the CoI framework. One of the greatest challenges in creating this guide was identifying current instructional designers who had significant backgrounds in the design and development of online learning and significant experience with the CoI framework. While this guide uses the expertise derived from the interviews – the realization is that there is additional knowledge that can be tapped to improve the overall product and effect. It is anticipated that this guide will need to be updated periodically to accurately reflect the knowledge base of the CoI framework to include the broader shared expertise of the design community using the CoI framework. In addition, the validation of many of the identified instructional strategies has not been completed. Future work needs to be conducted to identify the impact of specific instructional strategies on the levels of social, cognitive, and teaching presence.

CoI Instructional Strategies and Activities Guide Structure

The content and structure of this guide is due in part to the responses by experts to several questions as part of the phenomenological interview process. One of the specific questions directing the structure and content contained within this guide was “What resources (materials or content) would be most useful in the support of practitioners who want to design for the CoI?”. Based on the responses received through the interview process, this guide, along with the job aid was created. In addition to the interviews, the validation of the guide by a Delphi panel resulted in feedback and further modifications to support the stated goal of the guide.

Expert Practitioner Profiles

This guide was made possible through a series of phenomenological interviews conducted with expert designers, three of which have extensive backgrounds with the CoI. Each expert completed a series of three interviews (for a total of twelve interviews) to draw on for the creation of this guide. To learn more about

the experts interviewed, please refer to Appendix A: Expert Practitioner Profiles to gain insight into the backgrounds and experiences of the practitioners interviewed.

Expert Practitioner Quotes

Where appropriate, quotes from the expert practitioners interviewed as part of the phenomenological interview process have been included. The expertise shared by this group is the driving force behind this guide and the quotes represent their real-life design experiences. The quotes also add context for each respective section in the guide and by starting with a quote from a practitioner, it honors their willingness to share their experience for the larger good of designing for the CoI.

Acronym Definitions

ADDIE	Analysis, Design, Development, Implementation and Evaluation
CoI	Community of Inquiry
CMC	Computer Mediated Communication
CMCQ	Computer-Mediated Communication Questionnaire
CP	Cognitive Presence
ID	Instructional Designer
PIM	Practical Inquiry Model
SP	Social Presence
TP	Teaching Presence

Section 1: Community of Inquiry Primer

"..it [the CoI] really leaves it open so that you…can use your own personal philosophies and styles…"

For those unfamiliar with the CoI framework, a brief explanation of the CoI, including a review of the literature supporting the CoI as a valid framework is provided. This section is supported primarily by results of the research from the originators of the CoI framework as well as the plethora of research being conducted with the CoI.

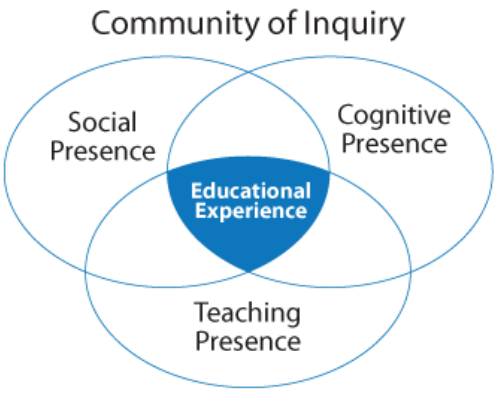


Figure 1. CoI Framework
Garrison et al., 2000 (used with permission)

The Community of Inquiry (CoI) framework describes how the process of learning takes place in an online learning environment through the educational transaction that occurs at the intersection of social, teaching, and cognitive presence (Garrison, Anderson, & Archer, 2000). It was suggested by Garrison et al. (2000) that one could achieve successful learning experiences in an online learning environment through the interaction of these three presences and early work was done to identify indicators of each of the three presences.

It is important to note that at the time of the creation of the CoI, the framework was developed to address the use of computer-mediated communication (CMC) environments (Garrison et al., 2000). Since that time, the CoI has been expanded for use and research in blended learning environments (Vaughan & Garrison, 2006).

Garrison et al. (2000) highlight the significance of the role of the designer in creating a structure and facilitating online learning. The authors, even in the earliest stages of the development of the CoI model, state the need for "determining how best to design and conduct a computer conference for the purposes of meaningful and worthwhile learning outcomes" (p. 97). In order for the educational transaction to take place, design considerations apply to each of the three presences–social, cognitive, and teaching.

Cognitive Presence

> *"….but then they explained trigger events, and how the process [worked]–it was almost like looking at the inside of a student's brain and how their brain is going to work in a lot of ways."*

Cognitive presence is described by Garrison et al. (2000) as being the most basic to success in higher education Computer Medicated Communication (CMC) environments. The authors define cognitive presence as "…the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (p. 89). Learners construct and confirm meaning as a part of the cognitive presence through sustained reflection and discourse (Garrison & Arbaugh, 2007). Recent studies have identified that social presence and teaching presence support cognitive presence and that cognitive presence flows as a result of both social and cognitive presence being established in a discussion forum (Stein et al., 2007).

Cognitive presence is grounded in the critical thinking literature (Garrison, Anderson, & Archer, 2001) and is considered both a process and an outcome. In terms of an outcome, Garrison et al. (2001) state that from an individual perspective, critical thinking is "the acquisition of deep and meaningful understanding as well as content-specific critical inquiry abilities, skills, and dispositions" (p. 8).

Garrison et al. (2001) use the Practical Inquiry Model (PIM)-figure 2-to operationalize cognitive presence. The PIM defines four phases that are used to describe and understand how learning (i.e. cognitive presence) occurs in an educational context (Garrison et al., 2001). These four phases include the triggering event, exploration, integration, and resolution. The PIM describes the process as to how the student constructs knowledge in an online text-based learning environment (Garrison, et al., 2001).

In an explanation of the PIM, Garrison, et al. (2001) discuss the theoretical foundations that shaped the PIM as a way to operationalize the concept of cognitive presence. The work of Dewey heavily influenced the development of the PIM, particularly Dewey's "recognition of the shared and private worlds of the learner…in understanding the creation and support of cognitive presence for educational purposes" (p. 9). The authors describe the purpose of the PIM as a

way to assess the quality of critical and reflective discourse as it occurs as part of a text-based environment.

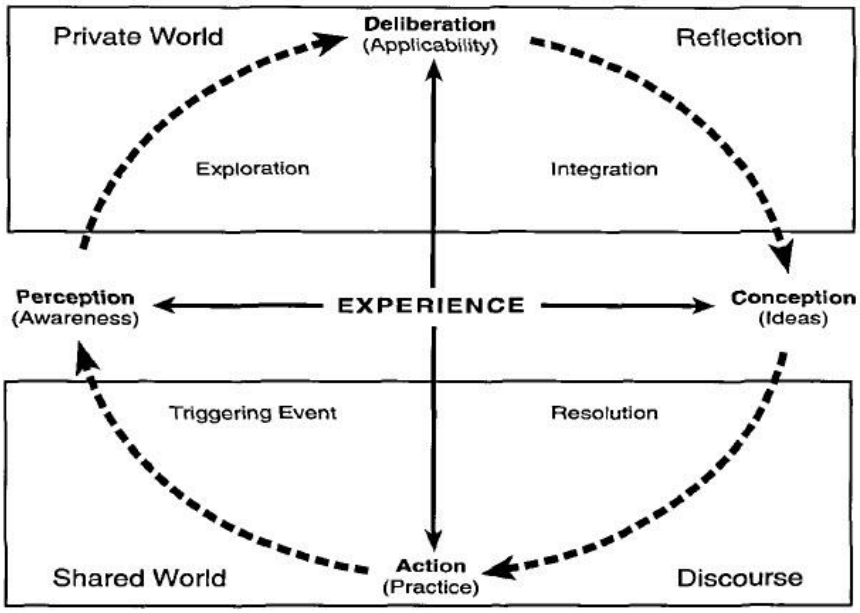


Figure 2. Practical Inquiry Model

Deconstructing the PIM

The quote at the beginning of this section describes one expert's journey in understanding the CoI model and how that transformation occurred over time. This particular expert was aware of and understood the model; however, it wasn't until diving deep into the model that the expert truly began to understand how the four phases of the PIM could be used by a designer when designing for online learning environments.

When asked what could be done to shorten the amount of time it would take for someone to learn and be able to design using the CoI as a design framework, experts recommended that each part of the model be broken apart and explained in detail. The argument was that while the CoI is inherently an easy model to understand the transition from understanding to using the CoI and particularly the PIM as frameworks for designing instruction is a significant leap.

In this section, each of the elements of the PIM will be deconstructed based on the work by Garrison et al. to assist those new to the CoI with better understanding how each of the components and dimensions of the PIM function. As part of the deconstruction of each of the elements of the PIM, included within

each component of the PIM there will be a brief discussion on design implications from a practitioner's perspective.

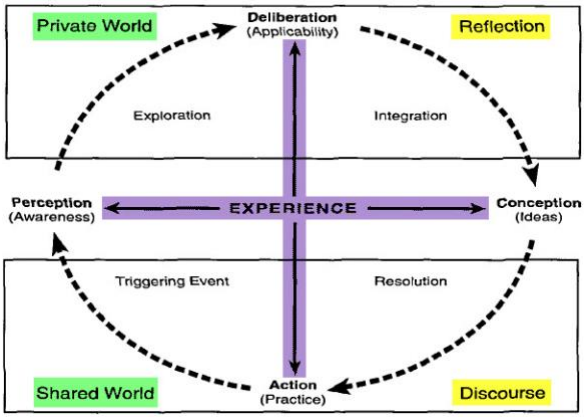


Figure 3. Practical Inquiry Model Dimensions

To move the learner from one aspect of the continuum to another, the authors present four phases of the PIM (Triggering Events, Exploration, Integration, and Resolution).

It is important to note that the four phases of the PIM are not linear and that based on the designers intent in support of achieving an outcome, any of the phases may be included without having to assume that the learner needs to go through all four phases sequentially.

Garrison et al. (2001) describe the first dimension as spanning the ***continuum*** between Perception (awareness) to Conception (ideas). The second dimension focuses on the ***transition*** from Deliberation (applicability) to Action (practice). In addition to the two experience dimensions, further attention will be provided to the concepts of moving from the shared world to the private world through the transition from triggering phase to the exploration phase. It is through the movement of the learner from perception or an awareness of the content to deliberation or applicability of the content – often times from a real-world perspective that the learner moves from exploration to integration. Finally, as the learner integrates knowledge and begins to build a new context, discourse and the action or practice of putting new knowledge to work is critical in achieving resolution of knowledge.

Design implications related to these two dimensions in particular, include looking at the overarching design of the course and/or module(s) to ensure that you select instructional strategies and activities that aid the teacher and students in moving through each of the continuums. The types of strategies used as one progresses along the continuum and/or move through each of the four phases of the PIM reflect deeper learning and require higher order/critical thinking skills. The teacher (and in some cases the learner) moves from a more conceptual experience to a concrete experience.

Triggering Event

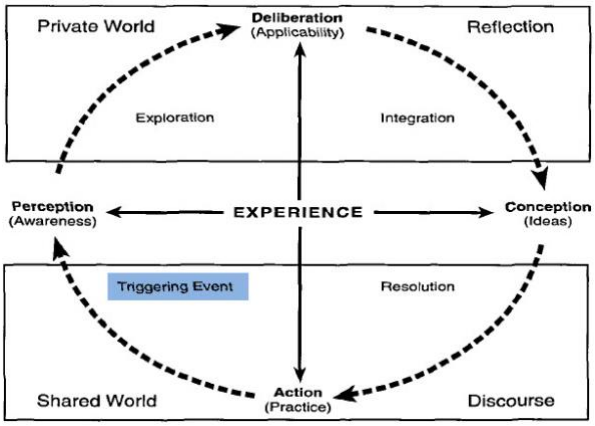


Figure 4. Practical Inquiry Model
Triggering Event Phase

The PIM highlights four sequential phases through which the learner makes meaning of the subject being taught and are seen as not subject to change (immutable).

The ***Triggering Event*** is the first phase of the PIM and is described by the authors as an event in which "an issue, dilemma, or problem that emerges from experience is identified and recognized." (p. 10). The triggering event is often initiated by the instructor (or sometimes even by a student) as a problem statement or question as part of the threaded discussion or by other means (i.e. a collaborative environment). The authors highlight and point to the fact that anyone in the community can inject a triggering event as part of the computer mediated communication forum. The triggering event is meant to be understood by the larger community of learners (i.e. shared world).

During this phase, the role of the teacher has three primary functions. The first is to initiate the triggering event. Secondly, the teacher should shape the discourse around the triggering event. Finally, the teacher may even consider removing triggering event(s) injected into the discourse by a student if that triggering event does not apply to or further the current discussion to the stated outcome. The application of teaching presence in this phase is to guide the learner to the specified outcomes.

Design implications of the triggering event phase include framing the content to be learned in an appropriate triggering event. At the same time, the designer must consider if the learners are able to understand and act accordingly on the triggering event. It is critical for the designer to clearly outline the successful outcome(s) and for the teacher to articulate the outcome(s) as part of the triggering event.

Exploration

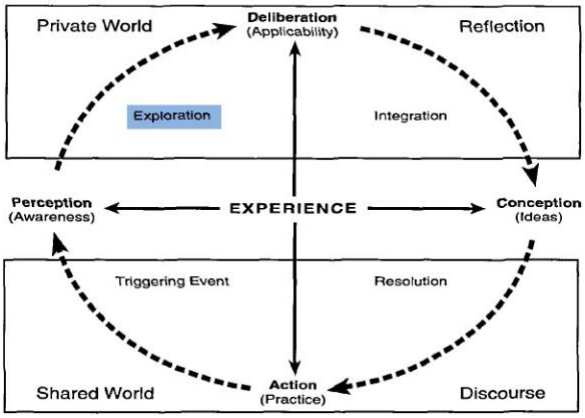


Figure 5. Practical Inquiry Model
Exploration Phase

The second phase – ***Exploration*** is seen as an opportunity for the learner(s) to further explore the elements of the triggering event. The authors describe the learner shifting back and forth between the shared and private world as an iterative process as learners work to grasp the nature of the problem and move toward further exploration of relevant information. By the end of this phase, learners are beginning to be selective in terms of the types of information that are relevant to the problem initiated in the triggering phase.

Design implications for the exploration phase include how to engage learners in the exploration of knowledge applicable to triggering event. This is where experts may use a variety of learning, instructional design, and/or other theories that allow the learner to explore the topic. Including the ability to learn both collectively and individually is important to consider from a design perspective.

Integration

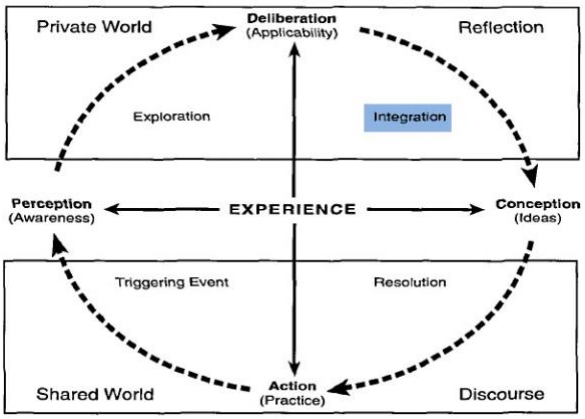


Figure 6. Practical Inquiry Model
Integration Phase

The third phase – ***Integration*** has the learner "…constructing meaning from the ideas generated in the exploratory phase." (p. 10). It is in this phase that the learners take the ideas and information generated as part of the exploration phase and asses this information in relation to the triggering event. This process, the authors say, is iterative where students move repeatedly between reflection and discourse as they attempt to make meaning of what has been explored and solidify their ideas as they move towards resolution.

The authors also state that the role of teaching presence is critical at this point to move students from exploration to integration of the knowledge and to

model the critical thinking process. A discussion will occur later that supports the incorporation of new and diverse information (through the use of instructional strategies and activities) to support moving to the integration phase of the PIM. The authors describe this phase (the move between deliberation and conception) as the most difficult to detect.

Design implications related to the integration phase include design decisions on when and how to integrate new knowledge and information. The integration of knowledge can also be met outside of the PIM environment through a series of instructional strategies and/or activities that may not require the use of the threaded discussion forum (i.e. project-based individual or group work, reflective papers, etc.). It is important that however the integration of knowledge is achieved that somehow the designer and teacher bring that knowledge back into the community of inquiry.

Resolution

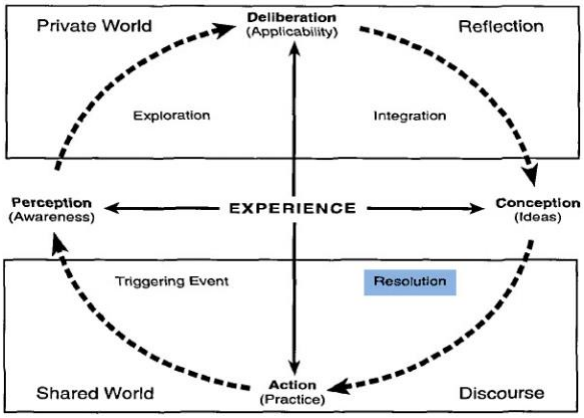


Figure 7. Practical Inquiry Model Resolution Phase

The final phase – ***Resolution*** occurs as learners resolve the dilemma initiated in the triggering phase of the PIM. The authors compare and contrast the resolution phase between noneducational and educational settings. The authors state that it "…usually entails a vicarious test using thought experiments and consensus building within the community of inquiry" (p. 11). It is key at this phase to ensure that learners have opportunities to apply their newly created knowledge.

Design implications for the resolution phase are significant. Selecting appropriate instructional strategies and activities that allow the learner and the teacher to ensure that resolution of knowledge has occurred is significant. There are however, a number of instructional strategies that allow the teacher to identify that the learner has achieved resolution of knowledge assuming that in the triggering phase, the outcomes were clearly specified.

Cognitive Presence from the Practitioner's Perspective

From the perspective of the expert designer, the PIM is a critical component to understand as part of the CoI model. The reality is that the content that is presented by the faculty can use the PIM as the framework from which to build in instructional strategies and activities. As described by Garrison et al. (2001), there are four phases to the PIM: the trigger event, exploration,

integration, and resolution. It is the responsibility of the designer to move the learner through the PIM (or any other appropriate model that supports the transfer of knowledge) using a variety of learning strategies and activities. The PIM and the four phases of the PIM are often quickly overlooked; however act as the cornerstone of the CoI in building cognitive presence through critical collaborative inquiry.

In addition, the PIM provides the designer with an excellent model from which to work to build in and integrate aspects of teaching and social presence. While the PIM focuses on the ability of the learner to construct knowledge, the types of instructional strategies and activities employed by IDs can positively impact not only cognitive presence but also social and teaching presence. The next section goes into more detail on Social Presence and the three categories that comprise this important presence.

Social Presence

> *"My interests, because of my background in visualizing information, have always been in the visual representation of self in online learning and the representation of self in online social groups, now social communities…"*

Social presence is defined as "…the ability of participants in the community of inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as 'real people'" (Garrison, et al., 2000, p. 89) and has been the presence studied most extensively (Garrison & Arbaugh, 2007). Akyol and Garrison (2011) also described social presence as "the learning climate through open communication, cohesion and inter-personal relationships" (p. 185). Social presence has been identified as supporting cognitive presence through the building of community in an online environment. Social presence enables the critical thinking process of discourse in asynchronous communication through the creation of an environment where discourse can take place safely (Garrison, et al., 2000).

With regard to discourse, Garrison et al. (2000) differentiate between collaborative and transactional types of messages that occur in a CoI. A collaborative message includes discourse while transactional or simplistic types of messages are a simple process of downloading information. According to Garrison, et al. (2000) a quality message in a true CoI is "questioning but engaging, expressive but responsive, skeptical but respectful, and challenging

but supportive" (Garrison et al., 2000, p. 96). The authors discuss the relationship between social presence and cognitive presence stating that when social presence is enhanced in the CMC, it can lead to increased levels of cognitive presence. A key point made by Garrison et al. (2000) is that this increase in cognitive presence through social presence occurs when appropriate teaching presence exists. Shea et al. (2006) found a correlation between teaching presence and higher levels of "learning and community when they also reported that their instructors exhibited more salient 'teaching presence' behaviors" (p. 184). These points describe the importance, connectedness, and integration between each of the three presences involved in the educational transaction. In addition, this example reinforces the necessity of sound instructional strategies and activities to increase the levels of social presence.

Social presence is the most widely studied CoI presence (Garrison et al., 2000). The authors adopted the concept of social presence as part of the CoI based on previous work of communications theorists (Daft & Lengel, 1986; Short, Williams, & Christie, 1976; Sproull & Kiesler, 1986). Three categories of responses by participants in an asynchronous discussion were identified as indicators of social presence: affective responses, interactive responses, and cohesive responses (Rourke, Anderson, Garrison, & Archer, 1999). The authors identified 12 indicators corresponding to one of the three social presence categories. Levels of social presence were identified and measured through the analysis of transcripts to test the efficacy of the tool for analyzing levels of social presence in the CoI (Rourke et al., 1999).

Researchers have looked at the learner characteristics which acted as predictors of social presence in online courses (Mykota & Duncan, 2007) and tried to determine if any individual learner characteristics could predict the degree of social presence experienced by participants. The authors explain the importance of instructors and designers in designing strategies and facilitating interactions that increase social presence. In addition, social presence indicators have been identified in a variety of CMC methods, including email and online group discussion formats (Lomicka & Lord, 2007) indicating the need to understand the impact of all forms of communication on social presence.

A number of variables and factors have been found to impact social presence. Dow (2008) identified four factors effecting social presence associated with online interactivity, social context, and communication. Mykota and Duncan (2007) found that several variables were significantly correlated and act as predictors of social presence. The variables impacting the levels of social

presence include the number of online courses previously taken and self-rated computer-mediated proficiency. The authors recommend taking into account the experience of the target audience in CMC environments during the design process and suggest providing pre-course instructional activities and demonstrating how interaction is structured in online learning. These are examples of instructional strategies and activities that could support one or more of the CoI presences.

Tu et al. (2011) conducted a study using the Computer-Mediated Communication Questionnaire (CMCQ) in order to determine the impact of gender on social presence. The CMCQ measures four aspects of social presence – Social Context, Privacy, Interactivity and Online Communication. Through the use of quantitative research design and analysis, gender was not identified as a predictor of social presence. Based on their work, the authors provide recommendations on communication strategies to impact social presence in CMC environments listed in Table 1.

Table 1. Communication strategies to improve Online social presence in CMC environments for both genders (Tu et al., 2011).

<table>
<tr><th></th><th>Male</th><th>Female</th></tr>
<tr><td rowspan="2">Social Relationship</td><td>• Suggest applying collaborate communication to build positive social relationships
• Suggest applying less direct, competitive & dominate communication</td><td>• Encourage applying collaborate communication
• to build positive social relationships
• Encourage applying rapport building
• Allow ample time to build social relationship & decision making</td></tr>
<tr><td colspan="2">• Allow forming smaller groups
• Apply High Group Development Communication Style</td></tr>
<tr><td rowspan="2">Social Identify</td><td>• Encourage building social identities rather than individual identities</td><td>• Encourage building social identities rather than individual identities</td></tr>
<tr><td colspan="2">• Engage learners in group communications to facilitate self-perceptions and self-awareness to build shared identities.</td></tr>
</table>

Online Communi-cation	• Suggest applying figurative language	• Encourage applying figurative language
	• Encourage frequent communication exchanges.	
Interactivity (Communication Style)	• Apply more descriptive communication styles to express intended meaning	• Avoid any competitive activities, such as debate
	• Apply Stylistic Communication Styles • Apply text-based feedback • Apply story telling style for posting	

Social Presence from the Practitioner's Perspective

From the perspective of the expert designer, developing community in the discussion area and creating a safe environment is a critical element in developing a Community of Inquiry. Trust comes from social presence. You want students to become comfortable enough to talk to each other, trust each other, learn from each other and then contribute back to the class; which feeds into the concept of teaching presence. It is important to begin the course with strong sense of social presence, setting the stage for a safe environment where everyone feels like they are beginning to connect. Once you have created a safe environment, experts recommend encouraging collaboration amongst the participants.

The recommendation by designers is to have plenty of activities to support social presence because social presence is your base from which cognitive and teaching presence is built. If the student feels that they can safely express themselves and that there are clear boundaries, they are more open to discuss their experiences and critique and have constructive criticism on their discussion posts. One expert described the importance of building in an introductory area in everything that supports building social presence.

In addition, social presence is not something that should only be designed into the beginning of the course. Instead, it should be integrated throughout the course. An example one expert used is the creation of a "virtual hallway" through the use of social media or other tools. The virtual hallway represents conversations that occur after a class concludes. This is where students and the teacher are having conversations regarding the content, or the discussion that occurred during the class. It's not the same concept as a "virtual lounge" where students and teachers can hang out because the virtual hallway relates more to

discussions surrounding the content and allows for informal interactions between the teacher and learners and between learners.

Several of the experts identified that they have been experimenting with ways in which to engage students where they [students] are within the boundaries of their academic policies and procedures but outside of their formal learning environments. This includes Facebook, Twitter, LinkedIn or Wikis in some cases. Social presence doesn't have to live only in the area of an asynchronous threaded discussion area. Social presence can also be present outside of the forums through such tools as email and audio feedback. The intent behind experimenting with social media technologies and social presence outside of the forum is in an effort to develop a sense of community while maintaining a balance between not having enough to build the levels of cognitive presence versus having too much where the learning outcomes are never achieved.

The experts also have several cautions regarding social presence. One expert cautioned that the environment they create to support social presence is based on the course and the type of space that is needed to support social presence, which varies from course to course. Another expert recommended caution as it relates to the building of social presence, as it is important to maintain balance. In order to maintain balance, it is important for the designer or instructor to ask "What does this class want from me…how much can I say or do in here that will not push them away or shut them up?".

Teaching Presence

> *"…it's not about what the instructor puts in, it's about what the students add to the learning and how do you get students engaged enough to add to that learning and what does it mean to have students really transition from knowing to synthesizing information and being able to possibly teach someone else."*

Teaching presence focuses on the design of the educational experience as well as the facilitation and direct instruction of the learning experience (Garrison et al., 2000). According to the authors, teaching presence is primarily the role of the teacher, however, participants or students can also fulfill aspects of teaching presence. Teaching presence can also be driven by the role of the designer if separate from the teacher based on the three subcategories of teaching presence: design, facilitation, and instruction. Teaching presence is

dictated to some extent by the design and facilitation of the learning experience. According to Shea and Bidjerano (2009), the instructor's ability to demonstrate teaching presence and develop social presence supports participant's ability to reach deeper levels of inquiry as described in the PIM which allows participants to develop higher levels of cognitive presence.

The strategies of pre-course instructional activities and recommendations described by Mykota and Duncan (2007) to increase social presence fall into two categories: pre-course activities and facilitation. Shea et al., (2006) found connections were identified between the levels of teaching presence and the sense of learning community felt by students. Effective instructional design and organization were identified through the use of Rovai's (2002) Classroom Community Index at increasing participants' perceived learning and community.

Each of the studies about teaching presence identifies components that could be valuable in the development of instructional strategies and activities that inform the CoI. These studies focus more on the measurement of one of the presences or the connection between presences as an output of teaching presence.

Teaching Presence from the Practitioner's Perspective

From the perspective of the expert designer, teaching presence is an important element in creating a community of inquiry. Teaching presence is important in impacting both social presence and cognitive presence. Teaching presence is used in many cases to initiate social presence and in some cases, cognitive presence.

Social presence is linked to developing cognitive presence and it is important that the teacher build a safe environment through the use of teaching presence. As the class feels higher levels of social presence (i.e. risk-free expression, emotions and encouraging group collaboration), they will begin to talk with each other and learn from each other, which feeds directly back into teaching presence.

Teaching presence includes instructional management. Each module (which in this case lasted a week), should include information such as: a module overview, learning objectives, required readings, learning activities and assignments, forum topics, reflections and a module in review. Providing this information to the student set the framework from which learning expectations would be set.

A key piece of advice by one of the experts includes the role of the faculty member [teacher]. The old adage to avoid being the sage on the stage, but instead be the guide on the side, doesn't work. This expert recommended that a new adage be adopted: the sage on the side. The expert explained that the teacher can retain elements of the sage on the stage ***and*** it is about getting students to be other sages as well. There was a strong sense by this expert that there needs to be expertise in the classroom and stated "…by just saying the faculty is some facilitator of discussion, is a disservice to their expertise, which is why we have faculty teaching". The connotation of the sage on the side is that there are times where the teacher has to engage and direct the conversation to ensure that the outcomes of the module are achieved.

CoI Indicators

In their research, Garrison et al. (2000) developed a coding template that was used as they analyzed chat transcripts. The authors illustrate the relationship across the three elements by demonstrating the link between each of the three presences, the categories that make up each of the presences as well as indicators that demonstrate the presences. The indicators defined in the early evolution of the CoI were examples only and it was anticipated that future research would build on top of the original indicators.

Diaz et al. (2010) further expand on the definition and use of indicators by saying that "…each of the presences is, in turn, conceptualized as consisting of multiple elements which are operationalized as observable indicators" (p. 22). As a designer or facilitator of online learning, it is critical to understand that these indicators act as a guide to determining the types of instructional strategies and activities that can be used to develop each of the presences. The types of instructional strategies and activities should reflect the indicators developed by Garrison et al. (2000) and updated by Garrison and Arbaugh (2007) and built upon by later research-i.e. Shea et al. (2010). Table 2 lists each of the three elements of the COI, the categories and the Indicators as well as revisions to the indicators in teaching presence made by Garrison and Arbaugh (2007). For a more comprehensive view of indicators aligned to each of the presences' categories, please refer to The Community of Inquiry Instructional Strategies and Activities Job Aid. The job aid takes a more comprehensive view and identifies a broader set of indicators (as defined by the research) and instructional strategies and activities (as defined by research and expert interviews) that support demonstration of the indicator.

The designer should use the indicators as a way to identify instructional strategies and activities. For example, if the designer is looking to develop social presence and ensure that there is open communication, they should ask themselves what they can do to create an environment where they can see risk-free expression take place. This would lead the designer to identify and determine instructional strategies and activities that would support accomplishing the specified indicator–in this case, resulting in students participating in risk-free expression.

The challenge for practitioners is that researchers are using the term CoI indicators from multiple perspectives. The original research (Garrison et al., 2000) and subsequent updating of indicators by Garrison and Arbaugh (2007) used indicators to determine the existence of each of the presences. Boston et al., (2009) use the CoI survey and describe the CoI survey questions as CoI survey indicators. The authors have used CoI survey indicators to explore the relationship between the CoI and retention in online learning. This, to some degree, could cause confusion on the part of designers new to the CoI.

Experts participating in the validation of this guide discuss using the indicators as defined by Garrison et al. (2000) as part of the design process. In addition, during the discussion of designing for the CoI the experts explained that the CoI survey should *not* be used as part of the design process because it is so heavily focused on the perspective of the teacher. The designer should leverage the indicators described by the original and follow-up research in designing instructional strategies and activities to support each of the development of each of the three CoI presences.

The CoI Survey

Since the initial work by Garrison et al. (2000) on the CoI framework, one thread of research has focused on validating the CoI as a viable framework for CMC environments (Arbaugh, et al., 2008; Bangert, 2009; Garrison, Cleveland-Innes, & Fung, 2010; Shea & Bidjerano, 2009). Early attempts to measure social, cognitive or teaching presence focused on an analysis of content from threaded discussions (Garrison, et al., 2001). As the framework evolved, a CoI survey was developed to measure each of the three presences. Studies have aimed to validate the CoI survey to measure social, cognitive, and teaching presence as well as the integration between each of the three presences. Garrison, Cleveland-Innes and Fung (2010) confirmed the relationship between the three presences and confirmed that the CoI survey instrument is a valid measure of the each of the three presences.

Table 2: Community of Inquiry Coding Template (Garrison et al., 2000; Garrison & Arbaugh, 2007)

Elements	***Categories***	***Indicators- examples only (Garrison et al., 2000)***	***Indicators- examples only (Garrison & Arbaugh, 2007)***
Cognitive Presence	Triggering Event Exploration Integration Resolution	Sense of puzzlement Information exchange Connecting ideas Apply new ideas	No change from 2000
Social Presence	Emotional Expression Open Communication Group Cohesion	Emotions Risk-free expression Encouraging collaboration	No change from 2000
Teaching Presence	Instructional Management Building Understanding Direct Instruction	Defining and initiating discussion topics Sharing personal meaning Focusing discussion	*Setting curriculum & methods* Sharing personal meaning Focusing discussion

Arbaugh, et al., (2008) administered the 34-item CoI instrument to 287 students across four institutions in Canada and the United States. The analysis conducted by the authors demonstrates that the CoI survey instrument is a valid measurement of the three presences. The data were subjected to a factor analysis using SPSS version 15.0. The results were used to verify the three subscale structures resulting from the 34 items comprising the CoI survey supporting the validity of the three elements of the CoI framework (teaching, social and cognitive presence). According to the results, the three factors accounted for 61.3% of the total variance. Eigenvalues indicate a potential fourth factor; however, a scree plot indicated inconclusive results. The results suggest that teaching presence might be measuring two distinct constructs and the authors suggest that the items used to measure teaching presence may need to be refined to support measurement of each of the constructs.

Shea and Bidjerano (2009) also experienced similar results related to teaching presence in a validation study of the CoI survey. The analysis of 2,159 student responses from a fully online learning network suggested modifications to the questions representing the teaching presence construct. The authors used principal axis factoring with Oblimin rotations while attempting a three and four factor solution. The Kaiser rule of eigenvalues greater than 1 and the scree plot indicated that the three factor solution was the best fit with the data. The 12 items comprising cognitive presence explained 50.63% of the variance. The 13 teaching presence items had loadings greater than .30 accounting for 9.63% of

the variance while the nine items associated with social presence explained 3.90% of the total variance. Shea and Bidjerano (2009), recommend distinguishing direct instruction from the other constructs of teaching presence: course design and organization as well as facilitation.

Bangert (2009) also validated the CoI three factor model through an analysis of 1,173 participants of both fully online and blended courses. Similar to Arbaugh, et al. (2008) and Shea and Bidjerano (2009), Bangert's analysis identified a four factor solution. Items intended to measure teaching presence formed two constructs that were interpreted as course design and organization and teaching presence comprised of both facilitation and direct instruction. Bangert (2009) used exploratory factor analysis to determine if the "underlying dimensions of the CoI survey were consistent with the proposed elements of the CoI model" (p. 107). The results demonstrated a four factor solution with the fourth factor's eigenvalue slightly greater than 1.0. Two of the three items comprising this factor crossloaded with what other research has identified as representing teaching presence. According to Bangert (2009), the factor loading of items representing the fourth factor were significantly smaller (>.200) than their factor loadings for the teaching presence factor.

During Bangert's (2009) second phase of the exploratory analysis, the items were constrained to a three factor solution and the result was "a much more parsimonious and interpretable factor pattern consistent with the three proposed CoI model constructs" (p. 107). The three factors accounted for approximately 65% of the total item variance with cognitive presence comprising 52.2% of the total variance, teaching presence accounting for 8.47% and social presence accounting 4.36% total variance respectively. The author then used Lisrel 8.72 to conduct a confirmatory factor analysis. The results of the confirmatory factor analysis found the data to be a superior fit to a three factor model.

While the studies mentioned measure elements of the CoI through the CoI Instrument, there exists little support for practitioners (e.g. instructional designers and instructors) responsible for designing, developing, and delivering instruction within the CoI framework. One of the practical issues of the CoI research articulated by Garrison and Arbaugh (2007) includes "considerable room for future research from a practical and pedagogical perspective" (p. 168). For example, the authors suggest that research regarding practical strategies and guidelines in how to best create social presence is needed.

The CoI survey is outlined later in the guide to provide awareness of the survey. In addition, expert practitioners discuss their use of the CoI survey as part of the design process.

CoI Primer Summary

In this section, we explored the foundational research resulting in the creation of the CoI framework. In addition, we reviewed each of the three presences and how the CoI describes the process of learning through the convergence of each of the three presences: social, cognitive, and teaching.

Section 1 Reflection Questions

The following questions can be used to examine your experience in developing online learning and to begin to use the CoI as a framework from which to design.

- What aspects of social, cognitive, and teaching presence can you identify in your existing design work?
- How have you designed social, cognitive, and teaching presence into your coursework?
- What existing instructional strategies do you use that could support the CoI?

Section 2: The CoI Design Framework

> *"…the CoI is a beautiful framework in which the ubiquitous nature of the CoI allowed each designer to approach designing in online learning environments using the CoI from their own unique perspective."*

Research has described the CoI as a constructivist collaborative framework. Through the phenomenological interviews with expert designers, the use of the CoI for building a community of inquiry can be used as a part of any course in which the creation of a community of inquiry supports the learning outcomes. The challenge, for designers, is potentially using a constructivist framework as part of a course that may leverage other theoretical frameworks. Other theoretical views are not necessarily excluded from using this framework when the instructional strategies and activities call for the use of a community of inquiry.

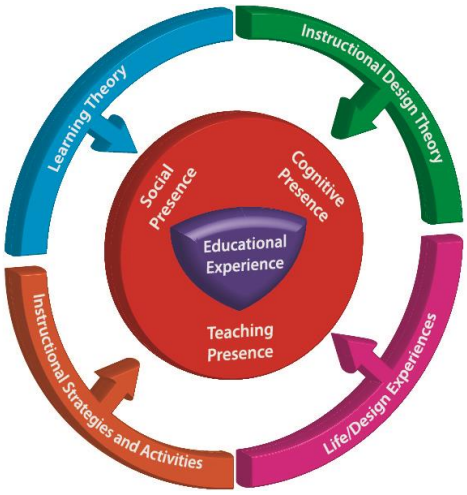


Figure 8. The CoI Design Framework

Through the phenomenological interviews, I was able to learn how experts with diverse experiences, backgrounds, perspectives, and unique experiences use the CoI as part of their design process as displayed in Figure 8.

Each one of the outside elements represents a dimension that acts as a filter which impacts how an instructional designer views the CoI. The phenomenological interviews demonstrated that each of the expert practitioners had unique backgrounds and experiences – none of which began their careers as instructional designers; however their careers led them to the role of an instructional designer. Each of these layers provides a unique perspective or lens through which we view the CoI. These layers also provide a reference to each IDs unique design framework and also results in and impacts the types of instructional strategies each designer carries in their toolkit.

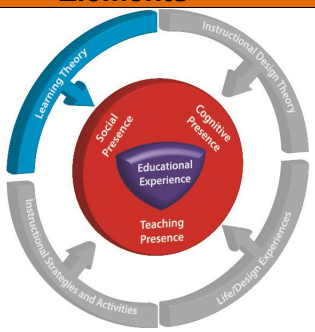
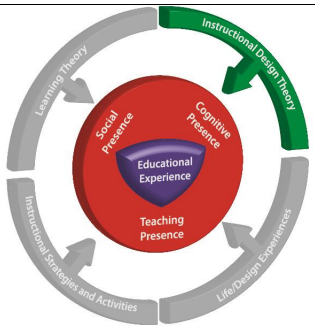
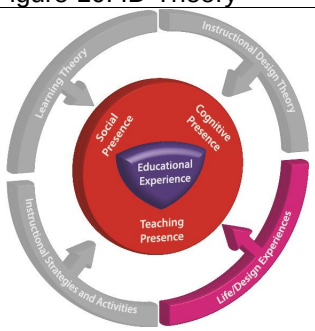
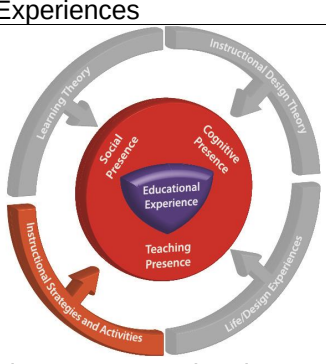
Each of the backgrounds and life experiences of the expert designers interviewed was unique. Similarly, the experiences and backgrounds each of the experts had in relation to learning theories, instructional design theory, and instructional strategies and activities formed a unique perspective that influenced

how they designed to create a community of inquiry. While the one constant was the CoI framework, the expert designers' interpretation of the CoI is heavily influenced through uniqueness of their experiences.

Most importantly, this research highlights how designers – with this vast amount of experience and exposure to various theories and life experiences, approach the design of instructional strategies and activities today. As their life and design experiences evolve, so do the types of instructional strategies and activities they use to support learning through the use of the CoI. This pattern of the use of evolving instructional strategies and activities is also apparent in the literature being published on the CoI.

What assumptions can we then make based on what was learned through the interview process? What we understand from expert practitioner designers interviewed is that life/design experiences play a significant role in the types of instructional strategies and activities used to support each of the three presences in the CoI and ultimately, the learning experience.

What follows is a brief explanation of each of the CoI Design framework elements. In addition, this section includes advice and observations from practitioners on how to view each of the elements. This context allows an instructional designer to look at the design framework from their own perspectives and beliefs, and translate those perspectives into the use of instructional strategies and activities that can positively impact the educational transaction that sits at the heart of the CoI framework.

Instructional Strategies and Activities Elements	Practitioner Advice
 Figure 9. Learning Theory	**Learning Theory:** One of the elements that impacts the approach to designing for the CoI was the learning theories familiar to the experts. In many cases, the experts could list the learning theories that they had studied; however, the link between the experts background in learning theories used and how those theories supported the approach to designing for the CoI were not clear. It is important to note, however, that there appeared to be an influence on learning theory and the types of instructional strategies and activities used. For example, one expert who ascribed to adult learning theories was more likely to include learning strategies that supported the adult learner concept such as the learners need to know, prior experiences of the learner, etc. as outlined by Knowles et al., 2007.
 Figure 10. ID Theory	**Instructional Design (ID) Theory:** ID theory impacted the approach experts took in designing for the CoI. In addition, other theories (e.g. museum theory) also influenced the designers in their approach to designing for the CoI. The most significant impact in terms of the experts approach to designing for the CoI was their mindset when designing. A background or exposure to a specific ID theory influenced the mindset and approach to the types of instructional strategies and activities – including the development of the strategies and activities to support the CoI.
 Figure 11. Life/Design Experiences	**Life/Design Experiences:** One of the strongest links in how expert designers design for the CoI is found in the designers' prior Life/Design Experiences. Each of the designers interviewed did not begin their careers as an instructional designer. As their careers progressed, and their experience in instructional design increased, these Life/Design Experiences heavily influenced their approach to designing for the CoI. Regardless of prior experiences outside of instructional design, those experiences (i.e. the presentation of visual Information, working with special needs children, etc.) heavily influenced the types of design decisions and types of instructional strategies and activities employed.
 Figure 9. Instructional Strategies and Activities	**Instructional Strategies and Activities:** The types of instructional strategies and activities used by experts varied. In addition, experts did not look at instructional strategies and activities as a one-to-one match with each of the three CoI presences. Rather, the experts looked at how the instructional strategy or activity impacted the educational experience, which represents the convergence of the three presences. Therefore, an instructional strategy and activity can positively impact one or more of the CoI presences. Experts understood their current technical environments and limitations, often using technologies outside of their academic environments (i.e. LinkedIn, Facebook, Twitter, etc.) to further support the development of the CoI.

Section 2 Reflection Questions

The following questions can be used to examine your experience in developing online learning and to begin to use the CoI as a framework from which to design.

- How does your experience with various theories (learning and instructional design) impact the types of approaches and instructional strategies and activities you use in your course design?
- What impact does your life/design experience play in terms of your preferences in the types of instructional strategies and activities you select to achieve learning outcomes? How does this influence your choice of instructional strategies and activities in developing for a community of inquiry?

Section 3: The Importance of Theory in Designing for the CoI

"…I know it [the CoI] is grounded in constructivist theory….I don't believe back 10 years ago that I was a constructivist. I really don't."

This section provides high-level summary of the variety of theories that influenced the expert designers on their way to adopting the CoI and that heavily influence either their approach and/or types of instructional strategies used. This section is a start at beginning to understand how previous experience and exposure to a number of theories (learning, instructional design, and others) influence the types of instructional strategies and activities employed by expert practitioners. It is assumed that as further research regarding the CoI evolves that constructivist learning and ID theory would become relevant and applicable due the constructivist nature of the CoI. It would not, however, preclude the influence of other theories, backgrounds and life/design experiences influencing designers in the selection and use of a variety of instructional strategies and activities to support the creation of a community of inquiry.

Throughout the interview process, it was discovered that a number of learning and instructional design theories identified by ID experts influenced the types of instructional strategies and activities used as part of their design process. No single theory stood out above the others throughout the interview process and each one described by the experts influenced their approach to design. While not all of these theories are constructivist in nature, they influenced the expert designers enough to be mentioned as part of the phenomenological interview and it is important to recognize the influence of theory on the types of instructional strategy and activity decisions that are being made in support of developing a community of inquiry.

Each of the theories listed in the table was described or mentioned by one or more of the experts during the interview process. These brief overviews are provided from the context of the expert ID, not from the literature to give a real-world sense of the impact of theory on the designer's perspective of designing for the CoI.

Theory Mentioned	Implications for the CoI
Adult Learning Theory: Knowles, Holton and Swanson	Experts point out that it is important to have a background in adult learning theory because you are asking students to take more ownership of the learning experience. Adult learning theory – Knowles et al. in particular provide insight into the adult learner. Some of the basic concepts of adult learning that impact the designer include taking into account and acknowledge the experiences of the learners that they bring to the learning environment.
Learning Styles: Kolb's Learning Styles was identified	Impacted the thought process on the types of instructional strategies and activities employed as part of developing a community of inquiry due to the understanding that adults learn through different methods.
Fee Choice Learning: Dierking, Carliner	One of the experts liked to create online learning environments where you learn from artifacts and you are able to explore. The expert described the work by John H. Falk and Lynn D. Dierking as well as Saul Carliner-which discuss learning from a museum perspective, has heavily influenced how this expert designs their courses. According to the expert, the design of a free choice environment allows the student to explore in an online learning environment in a non-linear perspective. This type of environment also allows the learner the ability to access an expert that can tell you about what you are exploring and the artifacts you are exploring at the point that you are examining a specific artifact. The free choice learning model is set up similar to a museum where the participant is able to interact and explore certain exhibits within the museum in their own. In addition to exploring, you have the ability to learn additional information – sometimes in the form of a museum guide and sometimes in the form of multimedia displays (i.e. videos providing in-depth explanations about the artifact) or other technology that allows you to connect at a deeper level with the exhibit. In the learning world, the same concepts apply. The exhibit is the content and the expert can be the faculty, as well as other information and content that allows the student to drill down into the details about the content being explored.
Multiple Intelligences: Howard Gardner	Multiple intelligences was also discussed as an opportunity for theory to influence design – to take into consideration the theory behind multiple intelligences and how those intelligences can be considered when implementing instructional strategies and activities as part of the learning experience. The author of this guide recommends reviewing the considering the use of Tracey's (2009) Multiple Intelligence Instructional Design Model. This model was created by Dr. Tracey as part of her research on instructional design theory that supports multiple intelligences. As part of her study, Dr. Tracey created an instructional design model that can be used by those who design for the CoI and want to consider the use of instructional strategies supporting multiple intelligences.

How Theory Influences Design

Practitioners often view the design of a course or curriculum from the perspective of the variety of theories they most closely align and have exposure to throughout their career. Learning and instructional design theory can play a significant role in the design of a curriculum, course, or module. For example, some practitioners familiar with Kolb's learning styles may choose to identify learning strategies and activities that support the learner and provide the ability to use a number of paths to achieve any one learning outcome.

Conclusion on the Importance of Theory in Designing for the CoI

Through the interview process, it was apparent that the experts' background in theory had influence in terms of their approach to designing for the CoI. Specifically, the impact was in how they approached the overarching environment they wanted to create in which the CoI could flourish as well as decision making on the types of instructional strategies and activities used to create a community of inquiry. The challenge is that the connection between theory and the CoI as a constructivist framework and the impact of theory on the decision around the selection of instructional strategies and activities is not fully understood and needs to be investigated further. This section recognizes the influence theory has on the practitioner and provides some insight into how theory influences the creation of a community of inquiry.

Section 3 Reflection Questions

The following questions can be used to examine your experience in developing online learning and to begin to use the CoI as a framework from which to design.

- Based on your background and experience, what learning and/or instructional design theories do you feel would influence the types of instructional strategies and activities you would use as part of your design?
- Since the CoI is a constructivist framework, how can you continue to grow your knowledge about constructivism and translate that into your design work with the CoI?

Section 4: Things to consider before you start designing

> *"I would say, for myself, it's been a lot of experimentation. I go out there and see what's already out there, how people are doing it…or asking somebody, 'how would you do this?'….and then based on whatever the client, the faculty's needs are and their desired outcomes, just kind of meld it altogether."*

This section provides guidance and expertise from expert instructional designers (IDs) who have extensive online ID and CoI experience. The practical advice provided by IDs can support your adoption of the CoI framework in creating online learning experiences that maximize the transfer of knowledge.

Intent of Using the CoI: A Designer's Perspective

One expert stated that "through the use of the CoI framework, you simply want to create an environment where you have really good content and have a really good conversation in which all students can participate. That is what the CoI offers to us as designers – a framework in which to construct an environment that allows for a level of discourse in support of achieving greater knowledge."

The reality and challenge from an educational perspective, is that many faculty and staff have limited exposure to the world of instructional design. Even fewer faculty and staff have been exposed to the concepts of the CoI including understanding how the CoI can support them achieving not only the learning outcome, but also making the experience one that supports all aspects of the learning environment (i.e. socially as well as cognitively).

Safety as a Priority

Safety is key to developing an effective CoI. Safety provides the mechanism from which learners can feel as if they can contribute to the discussion and the knowledge within the online classroom. As one expert stated, "You want the students to become comfortable – comfortable enough to talk to each other, trust each other, learn from each other, and then contribute back to the class." Building social presence in this manner leads right into teaching presence from the perspective of "how" you are going to build the learning environment.

Technology Awareness

As designers, we cannot assume that everyone is familiar and comfortable with technology. Experts recommend integrating exploration of any of the technical aspects of your environment early-in the course. You don't have to be "overt" about them learning the technology or platform, simply embed it as part of your learning strategy or activity. In order to be effective, the learner must feel

comfortable navigating the learning environment because in many cases, the learning environment is not a linear environment. Learners want and should be able to navigate back and forth, choosing a variety of paths that allow them to achieve the stated learning outcomes.

Balancing Delivery, Evaluation and Relevant Instructional Strategies and Activities

Even though you may be solely focused on the design of a course, the ID, when using the CoI, needs to focus on other aspects of the online learning environment. The designer will want to consider the delivery and evaluation strategies in addition to the instructional strategies and activities that will be critical to achieving the learning outcomes. In several of the interviews conducted, designers used the CoI for both designing (as a reference) and evaluating the online environment. As designers focus on the learning that occurs as the center of the CoI, they were using the CoI survey as one of many tools to ensure that they had designed in a balance of social, cognitive, and teaching presence were included in the overall design of the course.

Experimentation

A key theme uncovered throughout the series of interviews conducted is that these expert designers were not afraid to experiment with a variety of learning strategies and activities. In being willing to experiment, there is always an opportunity for success and failure. From the perspective of the expert designer, a failure was an opportunity to refine the instructional strategy for the next time the course was being taught by tweaking or revamping the strategy–an opportunity for growth.

Expanding the Learning Real Estate

Instructional strategies and activities used as part of any course come with the realization that there is limited real estate available for the learning experience–primarily the actual computer screen. Recommendations on the use of this screen include looking at the online experience as a global opportunity to integrate a variety of technologies to support the content and that also supports the interaction of social, cognitive and teaching presence. While the screen space may pose a potential limitation, the navigational capabilities of online learning allow a great deal more flexibility than what is offered in a face-to-face environment.

Online vs. Face-to-Face – Does it Really Matter?

Many of those interviewed stated that instructional strategies and activities that work in a face-to-face environment can also work in an online learning environment. The recommendation by experts is that instead of being concerned with focusing only on your learning environment capabilities–focus on the best

instructional strategy or activity to employ in order to achieve the outcome. If you begin thinking from an ideal state, you can then modify instructional strategies and activities based on the resources and technology available. Begin with the outcome in mind and work your way back by asking, "What is the best way to accomplish (insert objective here)?" Working back from the outcome will have you asking follow up questions including, "What can I do to achieve each learning outcome?"

It is important to know from the larger perspective, what environmental barriers you have control over and to know which variables are going to impact the decisions that you make as a designer. These barriers can come both from the technology, the environment and the background or prior experience of the instructor. There are also barriers from the perspective of the learner, including the learners' background, skills and availability of technology. It is critical to understand the types of barriers from both the instructor and learner perspectives. In addition, as a designer, you must have full knowledge of the types of tools and instructional technology available to use prior to beginning the design process as it could influence the types of instructional strategies and activities used in the instruction.

What Teaching Presence Is and Is Not

According to one of the experts, many people think that teaching presence is teacher presence. It is not. Teaching presence encompasses any content added and it comes from the learning that occurs as part of the CoI and gets added back into the course. Teaching presence supports students moving through learning continuum, the change in what they believe (current knowledge) to be able to articulate new beliefs (new knowledge). In addition, teaching presence can be demonstrated by both the teacher as well as the student (student to student and student to instructor). The designer also has the ability to influence teaching presence through the design and choice of instructional strategies and activities selected.

Don't be Held Hostage by your LMS

"…and don't be held hostage by the LMS" was a quote from one of the expert designers. Each of the experts agreed that knowing the technology platforms and capabilities available to you as part of your institution is critical prior to beginning the design process. Knowing the capabilities, as well as the limitations of your learning technology infrastructure will guide you in terms of how you employ learning strategies and technology.

It is important to note that the experts were not stating that due to a limitation, a designer should not include a particular instructional strategy, but that the designer may have to look outside of their current environment in order to have a successful experience. The experts point out that if you only allow yourself to imagine possibilities which are allowed through the use of your learning management system, you are limiting your opportunities to enable students to engage with the content, each other, and with the faculty. As a designer, the focus should be more on the interaction pieces and building them in from the start and not limiting yourself from the start. It is important when using technologies outside of the academic environment to be aware of and ensure accessibility standards.

Guiding Language for Instructors

If you are designing learning for others, it is important to include guiding language for the faculty delivering the instruction. Guiding language provides the instructor with specific instructions and the context in order to have the instructor provide the right guidance to the student(s) throughout the course. As a designer, it is important to emphasize the role of the instructor throughout the module/course. It is important that the guiding language does not constrain the expertise of the instructor because the instructor is not only acting as a facilitator of discussions or activities; it is their expertise that supports increased knowledge creation. Guiding language for instructors should support the instructor helping the students to explore the content, activities, discussions, etc. and prompt the instructor to move the student through the various stages of the learning process.

Expectations for Students

It is important that as a designer, to design the learning experience in such a manner as to get students thinking right from the start. First, this sets an expectation for the student that they need to be an active learner as part of the class, the learning won't just "come" to them by sitting back and not engaging in the content, with the faculty and with each other. Second, as the facilitator of the learning experience, you are setting the tone for the online learning experience through both the design (or execution of the design) and through direct facilitation of the online learning environment.

Advice on Course Structure

Faculty who may not be as familiar with online learning environments may have trouble understanding where to put specific information. In some cases, you could have content that is overwhelming to the student because of how and where the content is being placed. Later in this guide, a sample course structure

and course information sheet provide an explanation as to how you can appropriately spread content across your learning experience.

In general, it is important to structure the content so that students are being led through the content areas. While the content plays a part of cognitive presence, content alone does not produce the learning transaction at the core of the CoI model. As students are engaged in the content areas, the faculty instructing should be introducing both teaching presence and social presence as part of the design. This is accomplished through the use of a variety of instructional strategies and activities that are intertwined with the content and the application of the content in creating new knowledge.

Start by Building a Community

There is a strong tendency for faculty to get right down to the process of teaching the content. It is important to design and build an area that allows you to start the course before you get into the content. This area is a place to build and develop social presence – an introductory area. This does not mean that you cannot use the content as a basis to develop social presence as the two are not mutually exclusive. Experts recommend, however, that as quickly as possible, the designer should support the instructor in creating a strong sense of community.

It is important to have a balance of the instructor's and students' social presence in the online learning environment. As the instructor, it is important to ask, "What does this class want from me?" "How much can I say or do in here that will not push them away or shut them up?" One of the key aspects that need to be explored with the targeted audience is determining where students like to meet outside of the designated learning environment to collaborate on their coursework. If there is a space (e.g., Google Hangouts, Facebook, etc.) that sit outside the University's Learning Management System (LMS), the designer must carefully consider whether it is appropriate for the instructor to engage the students in that space from both the perspective of the learning environment, as well as institutional policies.

Breaking Down the Presences

One of the important events that aided one of the experts in the use of the CoI model framework was to break down each of the presences into three pieces during the design process. Looking at each of the three presences and determining the instructional strategies and activities became easier by looking at each of the three presences from these three dimensions. The three pieces that need to be addressed by the designer are listed below. Breaking down the

design activities into these three pieces provides a roadmap the designer can use as they are designing instructional strategies and activities into the course.

- The Content
- The Interactions intended to build knowledge via the content (i.e. the learning strategy/activity that will be employed)
- Assessing the success of the interaction on the knowledge transfer

Design Principles Supporting Social and Cognitive Presence

Garrison (2009) outlined seven instructional design principles to support the development of social and cognitive presence. The design principles are based on the three subcategories of teaching presence: design, facilitation and direct instruction.

1. Design for open communication and trust
2. Design for critical reflection and discourse
3. Create and sustain a sense of community
4. Support purposeful inquiry
5. Ensure that students sustain collaboration
6. Ensure that inquiry moves to resolution
7. Ensure assessment is confluent with intended learning outcomes

The CoI Survey

The CoI survey can be used with students to evaluate the learning experience and has categories of questions that aid the designer in identifying the levels of teaching, social and cognitive presence. Experts agree that from a design perspective, if you are using the CoI survey as the end of course evaluation, that you should be intimately familiar with the questions being asked. The CoI survey (Arbaugh et al., 2008) is presented below and the impact of the CoI on the design process is discussed. The CoI survey uses a five-point Likert scale where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree.

Teaching Presence Categories	CoI Survey Questions
Design & Organization	1. The instructor clearly communicated important course topics. 2. The instructor clearly communicated important course goals. 3. The instructor provided clear instructions on how to participate in course learning activities.

	4. The instructor clearly communicated important due dates/time frames for learning activities.
Facilitation	5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn. 6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking. 7. The instructor helped to keep course participants engaged and participating in productive dialogue. 8. The instructor helped keep the course participants on task in a way that helped me to learn. 9. The instructor encouraged course participants to explore new concepts in this course. 10. Instructor actions reinforced the development of a sense of community among course participants.
Direct Instruction	11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn. 12. The instructor provided feedback that helped me understand my strengths and weaknesses. 13. The instructor provided feedback in a timely fashion.
Social Presence Categories	**CoI Survey Questions**
Affective expression	14. Getting to know other course participants gave me a sense of belonging in the course. 15. I was able to form distinct impressions of some course participants. 16. Online or web-based communication is an excellent medium for social interaction.
Open communication	17. I felt comfortable conversing through the online medium. 18. I felt comfortable participating in the course discussions. 19. I felt comfortable interacting with other course participants.
Group cohesion	20. I felt comfortable disagreeing with other course participants while still maintaining a

	sense of trust. 21. I felt that my point of view was acknowledged by other course participants. 22. Online discussions help me to develop a sense of collaboration.
Cognitive Presence Categories	**CoI Survey Questions**
Triggering event	23. Problems posed increased my interest in course issues. 24. Course activities piqued my curiosity. 25. I felt motivated to explore content related questions.
Exploration	26. I utilized a variety of information sources to explore problems posed in this course. 27. Brainstorming and finding relevant information helped me resolve content related questions. 28. Online discussions were valuable in helping me appreciate different perspectives.
Integration	29. Combining new information helped me answer questions raised in course activities. 30. Learning activities helped me construct explanations/solutions. 31. Reflection on course content and discussions helped me understand fundamental concepts in this class.
Resolution	32. I can describe ways to test and apply the knowledge created in this course. 33. I have developed solutions to course problems that can be applied in practice. 34. I can apply the knowledge created in this course to my work or other non-class related activities.

Using the CoI Survey in the Design Process

Three of the design experts used the CoI survey as the evaluation instrument following the course as well as part of the design of the learning experience. Using the CoI evaluation as one element of the design process provides several advantages. One advantage of using the CoI as part of the design process is in understanding how the students will assess the learning experience from the perspective of cognitive, social and teaching presence. The ID can also use the survey as a guide to ensure that instructional strategies and activities align with or support each of the three presences. Using the survey as

part of the design process will enable the ID to anticipate the impact of instructional strategies and activities on each of the three presences.

In addition, the CoI survey acts as one of many tools that can be used as part of the design process. The CoI survey serves as a roadmap and a reference point (checklist) for the designer. The thought process is that by using the CoI survey, your design will be influenced to ensure that each of the presences is met and ultimately achieving the desired learning outcome. Combining the use of the CoI survey along with breaking down the design for each of the three presences into the content, and the interactions (a.k.a. instructional strategies and activities) helps the designer as they work through their own design process. In addition, the CoI survey allows the designer to identify, isolate, and troubleshoot any instructional strategies and activities that did not achieve the intended or desired success.

The CoI survey can also be used as a communication tool if you are designing courses that will be delivered by other faculty. Reviewing the CoI survey with the instructor prior to the start of the design of the course allows you to level-set basic concepts with faculty if they are new to the CoI. If the instructor has had some exposure of experience with the CoI framework, the conversation can change to focus on what's worked in the past and what has not. As the designer, you can also focus on incorporating the experience of the teacher in identifying new instructional strategies or activities they would like to incorporate into the course or module to positively impact the levels of social, cognitive, and teaching presence.

Limitations of Using the CoI Survey as a Design Tool

The CoI survey is useful in understanding and reflects the viewpoint of the creation of a community of inquiry primarily from the perspective of the instructor. Experts note that the CoI Survey; however, should *not* be used as the primary tool in designing a community of inquiry because its primary focus is on the instructor. Instead of using the CoI survey as a primary element in design, experts recommend designing around the templates and indicators (as described in the CoI overview section) because it focuses more on creating a learner-centered environment. This is a critical design point for instructional designers and teachers who are focused on having students take more responsibility for their learning. In addition, the indicators described in this guide as well as the job aid provide the designer and instructor more flexibility in creating and using instructional strategies and activities to support each of the three CoI presences.

Assessing Pre-Existing Content

If you are working on a course design that already has existing content, it is important to assess the content. It is important to walk through the content from the perspective of the student to identify their experience. As you walk through the content, you will get a sense for the cognitive presence pieces built into the course. In addition, you will be able to assess how the learning is being scaffolded (i.e. how concepts and ideas are built on over time throughout the course).

Designing Instruction that will be Delivered by Someone Else

Throughout the interviews, it was repeatedly pointed out that as a designer, you needed to fully understand the capabilities of the instructor with which you are working. By understanding the faculty's learning and instructional design theory beliefs and experiences, you as a designer can ensure that the types of instructional strategies and activities that you include as part of the design are appropriate, and will be executed as designed. As the designer, it is critical for you to be able to learn how to take the CoI and show the instructor – no matter what their philosophy, how the CoI fits and works with their preferred philosophy.

The instructor delivering the curriculum has to be able to successfully facilitate the strategy and understand the importance of why you designed or incorporated a specific strategy. In many cases, an instructional strategy is meant to impact more than one presence and relies on the instructor to manage the intent behind the strategy.

It is important, when working with faculty, that you have clear expectations on the outcome that needs to be achieved – which is similar to many other ways of approaching instructional design. Questions guide the expectations of both the instructor and the designer. Big picture vision questions support the designer in understanding what success will look like. Examples of the types of questions asked by expert IDs are included below.

- What is your goal? What are you trying to accomplish with this course?
- What do you envision as your end or desired state?
- What has been successful for you previously?
- What are your expectations coming out of the design and development process?
- What have you done in the past – in an online learning environment, that has worked well?

- What instructional strategies and activities have you found to be the most impactful for your students and why?
- How have you thought about the types of the interactions you would like to have?
- What new instructional strategies/activities would you like to try?
- How are you going to engage the students with the content?
- How are you going to get the students to engage with each other?
- How are you going to communicate with the students?
- What interaction are you building to support student-to-student engagement?
- What interaction are you building to support student-to-teacher engagement?
- How are you going to represent the instructor as part of the course?
- How are you going to build community?
- How are you going to get conversations going?
- What else have they tried that maybe wasn't as successful as they would have liked it to be and would maybe want to try again?

The questions above can be used as a starting point to better understand the perspective of the faculty delivering the course. It informs the designer with enough information to be able to determine the faculty's level of experience, comfort, and willingness to use or reuse instructional strategies that may or may not have worked in the past. It also allows the instructors to contribute their experience and thoughts to the design of the course. Finding out as much as you can about the instructor gives you great insight into how to proceed with the development process because everyone likes to work differently. An interview process – asking probing questions, allows you as a designer to really know how to shape the design before starting down the wrong path.

When working with faculty or other individual(s) who will be facilitating the delivery of the course, it is important to provide some background on the CoI framework. Providing definitions of each of the three presences as well as examples of how the presences work individually and collectively will create a mental model for the teacher. In addition, by understanding each presence and how all three presences interact in the development of knowledge, it will allow the teacher to engage with the ID on a deeper level during the design and development of the online learning experience.

The ID must examine the interactions between the student and the faculty, between students, and between students and the content. The designer also

needs to look at the immediacy of connecting with the students at that point where the interaction is most impactful. While this may be a process akin to faculty agnostic, meaning that your design should focus on achieving the stated outcomes, you have to design in the specific interactions that you intend to support the learning outcomes. This includes decisions on instructional strategies and activities, including guidance on how faculty can maximize the use of any given instructional strategy or activity.

Section 4 Reflection Questions

The following questions can be used to examine your experience in developing online learning and to begin to use the CoI as a framework from which to design.

- How do the recommendations under this section compare and contrast to how you currently prepare for the design of online learning?
- Were there any surprises related to what the expert identified as important or critical?
- What key pieces of advice do you feel are the most relevant to you?

Section 5: Instructional Strategies and Activities

> *"..the framework [CoI] is there…it would have been nice [for it] to say ' [that] for cognitive presence, if this is the desired outcome, here are your choices, A, B, C, D'…but it's interpretive…"*

This section provides insights into the types of instructional design strategies and activities put to use by expert designers and how design experts approach identifying and selecting instructional strategies and activities. An instructional strategy refers to the plan developed for how you present the learning to the learners. Learning strategies are based on the learning theory employed, delivery medium, the content, and learner characteristics (Dick, et al., 2001). All of the following instructional strategies and activities presented here came from expert practitioners. This list is in no way comprehensive and there are many resources available for online learning instructional strategies and activities. The purpose behind this section is to share the types of instructional strategies and activities in use by design experts who also design for the CoI. Before diving into the instructional strategies, we need to provide more definition into the elements that shape an instructional strategy.

Instructional Strategy Elements

Instructional strategies focus on how knowledge components are presented to the learner (Reigeluth, 1999) and are defined by Ross et al. (2007) as "prescribed sequences and methods of instruction to achieve a learning objective" (p. 717). According to Dick, Carey and Carey (2001), instructional strategies "are used generally to cover the various aspects of sequencing and organizing the content, specifying learning activities, and deciding how to deliver the content and activities" (p. 184). The authors describe four components of an instructional strategy which include:

- Content sequence and clustering
- Learning components of instructional strategies
- Student groupings
- Selection of media and delivery systems]

Throughout each of the examples of instructional strategies and activities provided by expert practitioners, there is always the "it depends" clause. When asking for specific examples of instructional strategies and activities used by the expert practitioners, the most common response was "it depends". When asked

probing questions, expert practitioners state that while there are some common instructional strategies that they might use, there are a number of factors that play into the selection and implementation of any specific instructional strategy or activity.

Practitioner Perspectives on Instructional Strategies

The quote that opens this section says a lot about the current state of the CoI and advice to instructional designers. As one of the experts stated, the CoI is an interpretive framework and there is very little that is prescriptive about it from an instructional designer's perspective. While at first, this may seem to be limiting, the CoI actually provides us with greater flexibility because it is an interpretive framework.

The comparison provided by one expert was for the designer to provide a path for learners to choose where to go for their learning. This translates into having one or more instructional strategies and activities that could be used in achieving the learning outcomes and allowing for exploration on the part of the learner. While the world we live in seems very linear, the very nature of online learning allows us to get out of the linear world and design, so that students may have multiple paths to explore the content and experiences being taught.

The triggering event (as described in the PIM) can be any event used to engage the learner and to begin the learning process as it relates to a specific module or topic. One of our experts referenced Gagnes Nine Events of Learning in which the first event was to gain attention – parallel to the first stage of the PIM – the triggering event. Exploration is achieved through a selected learning strategy or activity that can be used to support achieving the learning outcome and that the instructor is comfortable in using. Following exploration, the designer needs to design to the ability of the student and/or the instructor to integrate the knowledge and attempt to achieve resolution. Throughout each stage of the PIM, one or more instructional strategies and/or activities can be used.

Examples of Instructional Strategies used with the CoI

The following are examples of instructional strategies or activities, as well as the delivery mechanisms for instructional strategies and activities. The original intent was to logically group the instructional strategies according to the presence which it impacted most; however, due to the context in which the learning strategy being used is *not* defined, it is impossible to state that any of these strategies fits specifically into any one presence. In addition, learning from experts has shown that rarely is there a strategy that fits neatly into one of the

presences. More often than not, an instructional strategy or activity impacts multiple presences as described previously. It is important that the designer ensure through guiding language to faculty in the use of any particular instructional strategy to maximize the learning potential of the strategy.

Knowing your Learning Technology Environment

According to the experts, it is truly important to begin to collect instructional strategies that work for your environment. Each of the experts identified the environment in which they worked, including both the technological as well as the institutional guidance as to what external systems, applications, and tools can and should be used as part of the delivery of the learning experience. Expert practitioners, who have worked at multiple Universities, over time point out that instructional strategies and activities employed at one University, may have to be modified to work within another University's Learning Technology infrastructure.

Using Consistency and Course Structure to Enable Creativity

Prior to employing any specific instructional strategy or activity, the designer should establish a course structure that provides consistency in the learning experience from the perspective of the student. Experts recommend that you include common branding across all of your learning content and environments so that the student can know what they are looking at applies to their course and that it also supports where they are at in the learning process i.e. what module and week they are in, where they have been and also where they are going in upcoming lessons or modules.

A consistent course structure across a curriculum, program, or even University, provides the basis for consistency of experience for students and faculty. Developing a standardized course shell is important in setting expectations for students and for providing a framework for instructors as they teach or take additional courses. Standardizing the course shell and the general elements within that shell (i.e. instructor bio and information, text books, etc.) enables a consistency and creativity to focus on incorporating engaging instructional strategies and activities. The course shell should include course information documents and other types of documents that are persistent across all courses.

Course Information Documents

In order to get students into the learning environment, it's important to put course information documents out into a shared space. This allows you to entice participants into the online learning environment and provides them the ability to

explore. As part of the course information documents, also consider including the following:

- Instructor bio and information
- Content from the instructor
- Textbooks they need to have
- Grading rubrics they might need
- Syllabus
- Communication expectations
- Assignment overview(s)
- Expectations on how faculty will interact with students
- Expectations on how students will interact with each other
- Expectations with how students will interact with the content
- How do you want students to download and review files and any other uploaded content
- How do you want your students to access and review library resources
- How do you want students to interact with technology (i.e. email, discussion boards, learning management system, etc.)?

As a designer, if your primary role is to support faculty in the design of learning, it is important to provide a repeatable approach using the course shell. Include in the course shell explanations and context so that instructors can become accustomed to having the expectation of having the content for the course shell completed for each of their courses. Providing a consistent course shell allows you to dive deep into the content to determine the most effective ways to engage the learning through the use of instructional strategies and activities.

Sample Course Structure

The following outline represents a sample course structure synthesized from the interviews conducted. As an instructional designer, you should consider developing a course structure that can be modified based on the circumstances of the institution, the type of course you are designing, as well as the experience of the faculty you are working with to create the learning experience.

- Course biography section
    - Begins building community
    - Supports creating a safe environment
- Review (if appropriate) where you came from and how that links or ties into the next module.
    - This lets students know where they've come from

    - It allows the designer to incorporate key concepts from previous modules
    - It lets the students know where they should be so that if they need to go back and review, they can do so – and if needed, to go to the instructor for assistance
- Discuss the learning objectives and provide an overview of the module (the what)
- Discuss how the learning objectives will be achieved (the how). Please note that the "how" focuses on the instructional strategies and activities used to support the outcomes / objectives.
- Articulate how the learning will be measured throughout the module. Again, this is many times linked in with the types of instructional strategies and activities used throughout the module. For example, a case study could be used as part of the instructional strategies used to fulfill one or more of the learning objectives. The measurement of learning would be the resulting analysis of what participants put as their case study response when compared against a grading rubric.
- Provide a space for key concepts. The key concepts are typically linked to the learning objectives of the modules.
- Required reading
- Learning activities and assignments
    - Provide guiding language for the learning activities and assignments
- Forum topics
    - Provide guiding language in the forums
- Reflections
- Discuss what was learned at the end of the week and/or module and connect to what is coming up next.
    - Provides a contextual view of where the student is at in the overall course

Setting Expectations

It is important that as you begin to design the course, you include important information and context to the learner. It is critical to set boundaries and expectations both for the student and the instructor of the class. It is important for students to know when and how you will respond within the forums, what they can expect in terms of responses to email questions, etc. It is important to communicate expectations, to the extent that if you are not going to be able to respond in the timeframe you previously laid out that you communicate

expectations with participants. Setting expectations sets the foundation for learning to occur and also supports tenets of both social and teaching presence.

Considering Multiple Learning Styles

Once you have the course structure defined, selecting the appropriate learning strategy or activity can be influenced in a number of ways including learning styles or preferences. One of the things that practitioners look to do when working with faculty on the development of courses is to select learning strategies and activities that appeal to various learning styles.

Google Maps

In order to develop social presence, one of the strategies used was to create a Google map that allowed students to post where they were located. In addition, participants could tag their hometown, and provide additional details related to themselves. The purpose was for students to share personal information in order to be able to make connections with other students. This simple instructional strategy enabled faculty to create a sense of community. From the CoI perspective, a key component of social presence is building a sense of security and safety with students in order for them to become more active members of online classroom. In addition to contributing to the social presence of the learning experience, using this type of instructional strategy also supports teaching presence because of how it is designed into the initial portions of the class and it is directed from the perspective of the instructor.

Wordles

Wordles is another way to represent visual concepts and textual information. An example that has been used by one of the experts was to take introductory student posts (i.e. where they are from, what job they have, kids, pets, etc.) and input all of that information into Wordle. Wordle then creates a graphical output of all of this information that allows students to get a sense of their classmates, not only in the discussion area where they have introduced themselves, but also provides a graphical representation that gives them a different sense of their responses.

Book-Ends (i.e. Scaffolding)

The book-end instructional strategy is akin to scaffolding; however, there are additional aspects to using it in an online learning environment using the CoI as part of your design framework according to several of the experts. Practitioners who work with faculty on a regular basis to design and develop courses and the staff can better relate to the concept of book-ending vs. the more abstract learning terminology such as scaffolding. Practitioners use book-

ending as part of the structure for every module instructed. The structure includes an introduction to the module or section and informs the learner what they are going to be learning throughout the module.

At the end of the module, the facilitator should review what the participant should have learned as part of the experience within that module. While most of the practitioners stated that this should be a given, too often in online learning environments, designers don't take the opportunity to include strategies that allow the learner to link the learning that they've gathered throughout each module and to connect the learning from one module to the next.

Student-Synthesized Discussion Threads

On a frequent basis, assign a student (or students) to describe and synthesize the discussion area. At the end of the week or module (whenever faculty feels it appropriate) have a student or students go through and collect all of the thoughts and write up a summary of the discussion forum and post that to the forum. This could be considered another way to bookend a module – if using it at the end of a module. The student reviews the contributions, identifies key learning points through not only the forum but through other strategies and activities employed, and synthesize that through the writing of a summation. In addition to providing a great learning opportunity for the student(s) synthesizing the key learning points, it also provides an opportunity for other class participants to review and make connections to their learning experience. From the perspective of the practitioner, the recommendation is to create a separate space to store these summaries. Students who did not participate in the synthesis of the discussion area should also be able to comment on the summary to further the integration and resolution of the knowledge.

Provide Additional Learning Opportunities

Explore further opportunities. These are opportunities for learners to continue to explore a path where they want additional knowledge and information. This can come as a learning extension or as part of the overall learning experience building in additional opportunities for learners to go outside of the content to learn more about a given topic.

Learning Check Points

Learning Check Points: Throughout the learning, build in check points to ensure that learners are building the requisite knowledge along the path to achieve the eventual outcome. Learning check points, through the use of any number of instructional strategies and activities (i.e. quizzes, scenarios,

responses to forum postings, case studies, etc.) can help instructors determine the depth of knowledge experienced by students.

Scenario-Based Learning

Learning via scenarios was also a frequent comment by the experts. Providing learning experiences that closely resemble the real world provided rich learning contexts and examples. The scenarios you develop may be impacted by technology, funding, etc., however at the core of this learning strategy is providing the student a scenario as close to real-life as possible.

Audio

One of the instructional strategies used to support the CoI is audio. Audio can be included with a variety of uses including audio for feedback, introductions, and other aspects of the course where the instructor wants to make a deeper connection with students. According to one of the experts, audio feedback was welcomed by participants and was used as an element to support each of the three presences.

Audio allowed for social presence from the perspective of making a connection to the student in a more personal manner through faculty providing recorded feedback. The expert described the importance of the student hearing inflection in her voice and how feedback may seem harsher if simply provided in written form. It also allowed the instructor to provide context as part of the feedback which provided additional clarity.

In addition, the feedback supported providing guidance and feedback to the student on how to improve their writing (cognitive presence) and was used as a strategy by faculty (teaching presence) to be able to provide feedback quickly to participants. As mentioned previously, a single instructional strategy – in this case audio, is not isolated to support only one of the presences because audio can support facets of all three of the presences in how the designer incorporated the strategy into the design and their intent in using for all three elements.

Audio can also be used for other aspects of the class. In addition to using it for feedback, one of the experts used audio as a way to introduce themselves to students. As part of this introduction, the designer wanted to incorporate audio to make a connection to the students by providing background on their experiences. In this particular case, the designer also was the facilitator of a class that was largely comprised of students who worked full time and also took classes. As part of their audio introduction, the instructor was able to impart upon the students their experience working full time and being a student. The

instructor also described their experience going back to school and relating their experience to what the students might be facing.

Personal Narratives

In order for students to tell their personal stories, you have to create a very open and safe place, which means you have to set up the parameters of the conversation. Before jumping into a forum to discuss a forum topic, where the student is interacting with the content, consider having an assignment where students begin their experience in the forum providing their own personal narrative. This allows each participant to share their story and to begin to build community.

LinkedIn

One of the experts identified several strategies using LinkedIn as a way to engage students. There are opportunities within LinkedIn to create student groups for discussion capabilities. In addition, there are a number of professional groups within LinkedIn that can be used to expose students to and provide additional opportunities to learn.

Social Media Technology and the Virtual Hallway

Discussions surrounding social media center on the use of social media applications such as Facebook and Twitter. On the surface, designers may feel that the use of social media technologies would further the depth of social presence related to the CoI. An expert designer stated, that as a designer, we must look beyond the surface level opportunity that social media provides. The ability to use social media technology for any of the three presences is a possibility. How you use the technology really determines the value of social media technology in impacting any of the three CoI presences.

Based on the instructional strategy used, the designer needs to consider the extent to which using social media technology is used to engage the participant. Are you simply using the technology to engage student from a social perspective, or are you using social technology to engage them from a teaching presence perspective? Are you bringing in strategies and activities (teaching presence) that enable participants to engage each other as well as the instructor to help support the learning (cognitive presence)? How you use the technology to frame the instructional strategy – the instructional strategy context – determines which of the CoI presences can be impacted.

The Virtual Hallway

An important example of the use of social media technology is the virtual hallway. The hallway in online learning – where students can interact with each other as well as the instructor – is available through the use of social media tools. The image of the virtual hallway provided by one expert was to envision what happens in a hallway after class when students are walking out. Some will hang out, some will leave. Some will wait for the professor to come out so that they can talk to the professor to have a conversation about something that caught their interest and that they would like to seek more information on. The most significant difference between the virtual hallway and what some describe as the virtual lounge is that the virtual hallway conversations tend to focus around the content of the course – whereas the lounge is more informal and not specifically tied to the course. The social media capabilities may or may not be included as part of your existing learning technology infrastructure which is why, as a designer; you need to be intimately familiar with the capabilities available.

Students Only: Course Discussion Forum

One of the experts described the need for students to gather in a forum area to discuss specifics about the course – similar to calling another student on the phone to ask for interpretation or assistance with a problem or question related to the course, a course activity, etc. It is important that the instructor **not** participate or engage in this part of the forum and that students know up front that the professor will not be participating in this part of the forum. Set the expectation that this type of forum is for participants only and that you, as the instructor, will not engage students in this part of the forum.

Synchronous Instructional Strategies

The focus of the instructional strategies and activities thus has been for asynchronous learning environments. One option often overlooked is the ability to provide synchronous opportunities to bring participants together at the same time. One of our experts articulated that they ran an optional “why session” one time per week in the evenings. Students would show up not only to participate in the session but to also hear what they sounded like – to further the social connections formed from other instructional activities previously described. These technologies include Skype, Adobe Connect or Facebook Video.

Collecting Instructional Strategies and Activities

In many cases, instructional strategies and activities that you have used in the past can be a starting point in the discussion with faculty who are responsible for delivering the curriculum to begin to generate additional ideas that could

potentially be used. In addition, not every instructional strategy that has been used in the past can be re-used effectively in another design. The core of the instructional strategy may stay the same; however, the context from which the instructional strategy is employed may change and impact each of the presences.

Instructional Strategies and Activities Summary

This section described some of the instructional strategies and activities employed by expert instructional designers to support the development of a community of inquiry. This list is by no means comprehensive as there are many resources available that describe how to build community, or effective methods to build knowledge in an online learning environment. The importance of using strategies to support one or more of the CoI presences is a critical outcome of the interviews conducted.

Section 6: Using the CoI to Inform Design

"And what I like most about the community of inquiry model is that it is common sense…but it's based on theory. It's based on data and it holds together…it pulls together everything that I've learned from my past."

The interviews provided great insight into the CoI and how some of the original articles describing the CoI can be interpreted as advice to designers. The CoI framework provides insights and informs our approach to instructional design. This section will explore how designers have interpreted the framework from a design perspective.

The CoI informs design because the framework leads you to build in interactions and forces you to consider the outcomes through the use of the CoI survey. The CoI and the PIM define a framework for taking students through a learning experience in order for knowledge to be created. The CoI framework allows for one or more instructional strategies to be used through each of the four phases (trigger, exploration, integration, and resolution).

The CoI Context and Mindset

Typically, when using the CoI in the design process, our tendency is to put things into neat categories. As designers, we try to compartmentalize and fit various strategies and activities into a category related to one of the three presences. The beauty of the CoI, as described by one interviewee, is that the CoI allows the designer to model the instructional strategies in the context of the desired effect for the CoI (i.e. to increase or impact one or more of the presences based on the designer's intent).

The mindset of the designer changes when using the CoI as a design framework. The mindset of the designer needs to constantly look at the strategy being employed from the perspective of each of the CoI presences. Regardless of the delivery mechanism used for the instructional strategy (i.e. Learning Management System, LinkedIn, Twitter, etc.) the strategy can have an impact on each of the three presences by engaging concepts from each of the three presences during the design process.

The CoI as a Design Map

As a designer, you wear a number of hats. The CoI framework supports the designer as they try on each of these hats. The CoI framework also provides

a map for you to ensure that you have not missed anything. Three of the four experts interviewed were focused predominantly on partnering with faculty on instructional design activities for classes that faculty – not the designers – would be instructing. One of the experts stated that as a designer, it is imperative to realize that you are designing an experience for both the faculty and the students using each of the three presences. When you approach the design of the experience, it is critical to understand and identify the level of comfort and experience of the faculty who will be leading the session. It is important to assess the capabilities, experience, and desire of the individual(s) who will be delivering the learning experience. The designer must take into account the experience of not only the participants, but in the faculty or teacher who will be delivering the course, which is in many cases a significant difference compared to designing for a face-to-face environment.

Where Does Design Start – Social, Cognitive or Teaching Presence?

Using the CoI informs design in a number of ways. The literature and practitioners agree that at the implementation stage of a course, it is critical to develop a safe environment, which would mean starting with social presence. Advice given by practitioners includes beginning with social presence and ensuring that you continue to engage students to build social presence over time.

The four stages of the PIM are not linear, each of the stages begs for the use of an instructional strategy or activity at each stage that can pull in other aspects of the CoI (i.e. teaching, cognitive or social presence) in moving the learner through the PIM cycle. Throughout each of the design decisions you make as part of the PIM, you can ask yourself as a designer "what social, teaching or additional cognitive presence" types of strategies or activities can include at that point?" Questions to help identify appropriate instructional strategies include:

- How can I actively engage with the "content"?
- How can I actively engage with other learners?
- How can I actively engage with other "SMEs"?
- How can I manage the conversation to continuously ensure that we are building a shared understanding of the context and the content?

The process of identifying and selecting appropriate instructional strategies happens in parallel with educating the faculty and/or instructor. It is important to guide teachers in how to apply an activity that promotes one of more

of the presences. As an ID, you are teaching faculty how to promote, develop and experience a specific presence as they plan to engage their students.

The CoI can not only be used as a framework to guide the design and/or selection of instructional strategies and activities, but also as a design process. Many instructional designers have used the ADDIE acronym (Analysis, Design, Development, Implementation, and Evaluation) as a guide for designing instruction. Through the interview process, the author discovered expert IDs using the CoI (and the CoI survey) similarly to the way others who use the ADDIE acronym as a guide for designing instruction. This will be explored and lessons from the experts in creating a CoI using the framework also as a process will be explored.

The CoI is also used as the process to design instruction. The CoI reflects not only a constructivist online learning framework, but it is also used as a design process. The CoI is used as a guide to work with the faculty during the design process. The design process almost models or mirrors how designers can work with their subject matter experts in designing the course.

Using the CoI survey, you can identify where the design did not satisfy each of the three presences to diagnose and determine what caused the low scores. Then, you can determine a path forward to identify whether or not the instructional strategy or activity, technology and/or other variables contributed to the lack of success in achieving a specific aspect of the CoI.

Section 7: Resources for Practitioners

Resource 1: The CoI Instructional Strategies and Activities Guide

This section explores an initial framework to support the identification and selection of instructional strategies and activities intended to support increased levels of social, cognitive, and teaching presence. Through a series of questions, the framework will enable you to consider the types of strategies you will include in your course.

Resource 2: The CoI Instructional Strategies and Activities Job Aid

The CoI Instructional Strategies and Activities Job Aid was developed to provide IDs a jumpstart into designing for the CoI and provides examples of instructional strategies and activities that could potentially be used to impact one or more of the CoI presences. The Job Aid summarizes key points of the CoI Instructional Strategies and Activities Guide and also includes insights on the CoI Design Framework.

Resource 3: Formal Organizations to Extend CoI Knowledge

There are a number of resources outside of the CoI that have influenced designers and their knowledge of the CoI. Since the inception of the CoI, there have been a number of both CoI and non CoI resources that focus on creating an engaging online learning experience. Advice to instructional design practitioners who are successfully using the CoI as the backdrop for the design include expanding your CoI knowledge through groups such as The Sloan Consortium (Sloan-C). Sloan-C is noted for their seven pillars of effective practice. In addition, practitioners recommend joining active groups such as Sloan-C because of the types of research which are presented at their conferences. In addition, the Sloan-C conferences can be great opportunities to network with experts who have authored studies using the CoI framework as one of the elements of the study. In addition to Sloan-C, the Association for Education Communication and Technology (AECT) is another organization experts recommend to learn more about the instructional designers and the CoI.

How to Provide Feedback on the Guide

While this is a first attempt at the creation of a guide that specifically addresses instructional strategies and activities using the CoI framework, it is just the beginning. Feedback is appreciated in how to enhance this guide through your expertise and experience as an instructional designer and/or as an expert in the CoI. Please provide feedback through the primary author – Stephan Junion using the contact information in the footer of this document.

Appendix A: The ID Practitioner

> *"…you know, I don't know if anyone ever has a straight path anymore….the whole idea that we go from high school, and then go into college knowing exactly what our major is and then it's taking that major and applying it directly to a professional career and sticking with that professional career, it just doesn't seem to happen that way anymore."*

The instructional design practitioners interviewed as part of this research, demonstrated the unique paths that each designer took that ultimately led them to be introduced to the CoI model and to design instruction using that model as part of their framework. The information in Table 2 highlights the diverse backgrounds of three of the four expert practitioners interviewed for the study. It is important to understand that each of their respective backgrounds plays a significant role in how each instructional designer approaches the design process, interprets the CoI framework, and ultimately selects the types of instructional strategies and activities they employ as part of their design process.

The intent of profiling the experts interviewed is to provide some context and background as to the importance of each of the elements described in the CoI Design Framework. It is also important to understand that in each of the three cases presented below that the field and role of instructional designer developed over time. In addition, each designer's introduction to the CoI was unique and occurred at various points in time as the CoI framework was being developed and eventually with the development of the CoI survey.

Table 2: Expert Practitioner Profiles

	Expert Practitioner #1	Expert Practitioner #2	Expert Practitioner #3	Expert Practitioner #4
Career Path	Began in the non-profit sector. Earned a Masters and began working in the public school system working with teachers on differentiating instruction. Affinity towards technology led to more hands on and mentoring colleagues on technology in the classroom.	Undergraduate and Graduate degrees in information visualization and design. Spent eighteen years working in the field of information visualization before transitioning into a role working with faculty to assist them in integrating technology into teaching and learning. Completed a degree in technology distance education.	Worked for the government (state department) and transitioned to a job at a University (non-teaching position). While there, began studying Human Performance Systems (HPS) which included some courses on instructional design and earned a masters degree. Earned a Ph.D. in educational leadership.	Started in teaching and moved into politics. Earned a doctorate and began teaching at a community college creating a virtual reality simulation. Moved into the University environment in 2000.
Exposure to ID	Was exposed to instructional design job roles and left the public school system to join a corporation as an instructional designer supporting a large military contract work with Subject Matter Experts on the creation of online content.	Worked with faculty using their perspective on pedagogy and the CoI.	Via Master's degree in Human Performance Systems (HPS) was exposed to instructional design classes and earned an additional graduate certificate in instructional design. Began fully using instructional design background as a full-time faculty member teaching at a community college.	Informally until completing a masters and doctorate. Received in-depth exposure to learning and instructional design theory.
Higher Ed Experience	After working in the corporate environment, moved to a University environment. Currently leading a group in the design and development of online learning experiences using the CoI.	Began working with faculty to develop and integrate technology into the learning experience. Currently working full time at a University supporting the design and development of curriculum using the CoI.	Began working at a University in a non-academic position and worked at a number of institutions. After earning a Master's Degree in HPS and started teaching a class and applying instructional design learning. Earned a Ph.D. in Educational Leadership.	Broad background in higher education starting with community college and moving to a University Environment.
CoI Expertise	After moving to the University environment exposed to the CoI and began building a knowledge base on how to apply to the courses being developed. No formal training on the CoI as part of the design process.	Worked with the CoI framework from the beginning of their design career. Focus is the visual representation of self in online learning and the representation of self in online social groups, communities, etc.	Exposed to the CoI during a conference and began collaborating with colleagues on what it meant from a design perspective. Began using the CoI survey as part of curriculum design effort.	No formal exposure to the CoI.

Additional Readings & References

In addition to the practitioner interviews, this guide was developed from the knowledge of others who have conducted significant research on the CoI. Please refer to the following references for additional information and insight into the CoI framework. The brief overview provided in this guide is intended as a summary – although not an all-inclusive summary. For those who truly want to learn more about the CoI, the references below are a must-read for serious designers.

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Appendix B

The Community of Inquiry (CoI) Instructional Strategies and Activities Job Aid

The Community of Inquiry (CoI)

Instructional Strategies and Activities Job Aid

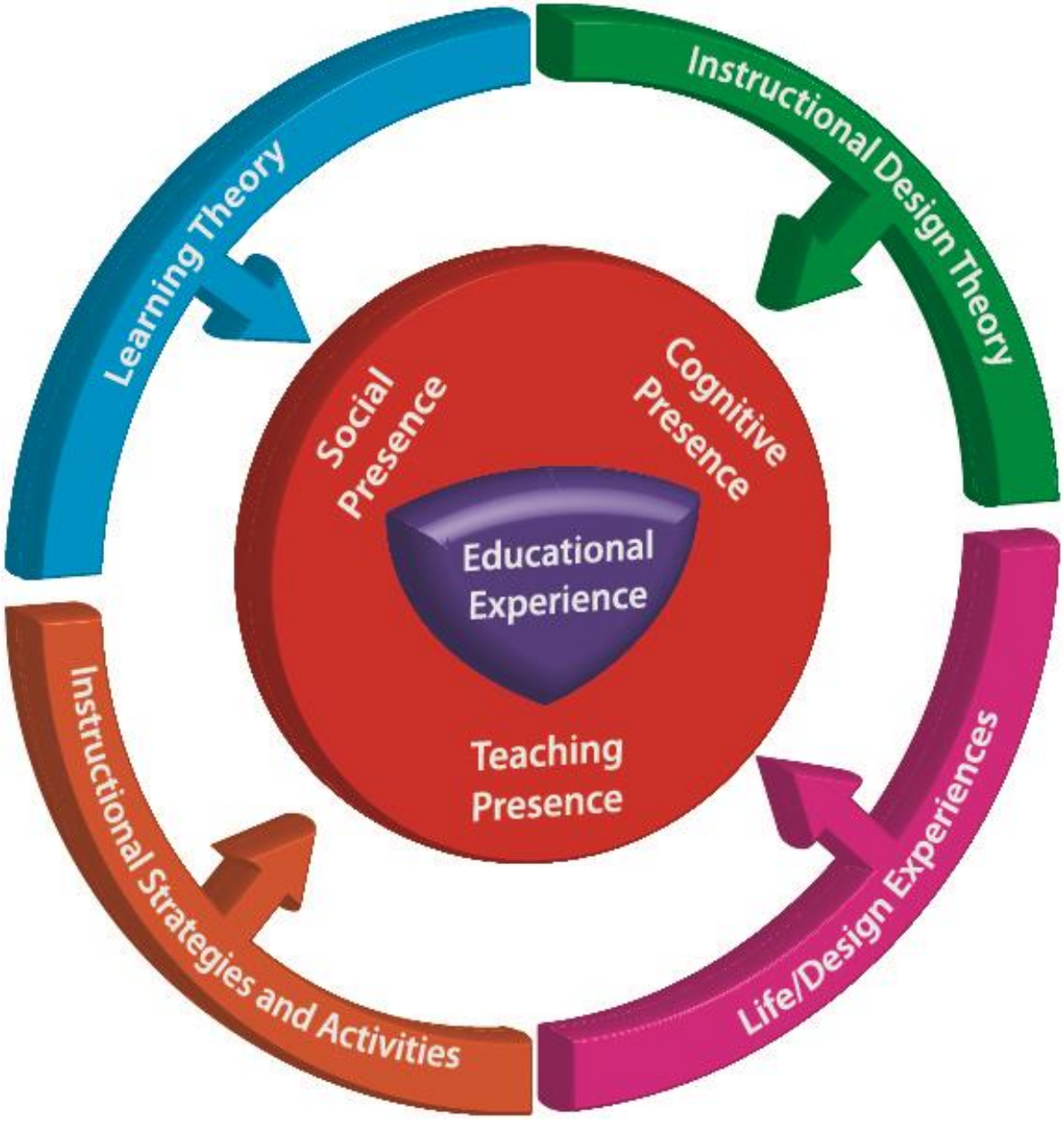


Table of Contents

Community of Inquiry Instructional Strategies and Activities Job Aid Overview 202
Section I: The Community of Inquiry Overview 204
Section II: The CoI Design Framework 207
Section III: CoI Indicators and Instructional Strategies and Activities 211
- The Importance of CoI Indicators 212
- Teaching Presence Indicators and Sample Instructional Strategies and Activities 214
- Social Presence Indicators and Sample Instructional Strategies and Activities 216
- Cognitive Presence Indicators and Sample Instructional Strategies and Activities 218

Summary 220

Community of Inquiry Instructional Strategies and Activities Job Aid Overview

Job Aid Goal

The goal of the Community of Inquiry (CoI) Instructional Strategies and Activities Job Aid is to provide insight for designers in the selection of instructional strategies and activities to support the creation of a community of inquiry.

Section I: Community of Inquiry Overview

The CoI overview section provides a high-level overview of the CoI framework and includes an overview of the original research establishing the framework. In addition, a brief summary of each of the components of the CoI framework as described in the literature is provided. The intent of this section is to provide those who are not familiar with the CoI framework, a basic overview, context for use in identifying and selecting instructional strategies and activities to support the creation of a Community of Inquiry. For more detailed information on the CoI, please refer to the Community of Inquiry (CoI) instructional Strategies and Activities Guide.

Section II: The CoI Design Framework Overview

The CoI Design Framework was developed as a result of a series of phenomenological interviews with practitioners who are experts in the design of online learning and who have expertise with the CoI framework. The CoI Design Framework elements will be explained. In addition, context on the selection of the instructional strategies and activities through the use of the CoI Design Framework will be provided.

Section III: CoI Indicators and Instructional Strategies and Activities Overview

In their research, Garrison, Anderson and Archer (2000) developed a coding template that was used as they analyzed chat transcripts to identify each of the three presences. The authors illustrate the relationship across the three elements by demonstrating the link between each of the three presences, the categories that comprise each of the presences as well as indicators that demonstrate the presences. The indicators defined in the early evolution of the CoI were examples and it was anticipated that future research would build on top of the original indicators. This job aid identifies CoI Indicators across the

research and provides insights into the types of instructional strategies and activities that support the development of each of the presences.

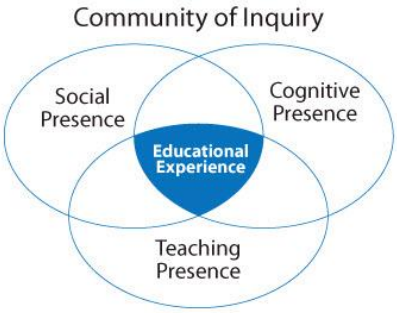


Figure 1. CoI Framework by Garrison et al., 2000
Used with Permission

Section I: The Community of Inquiry Overview

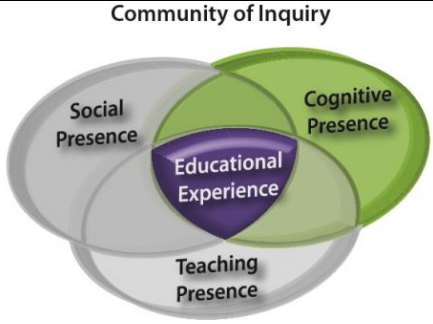
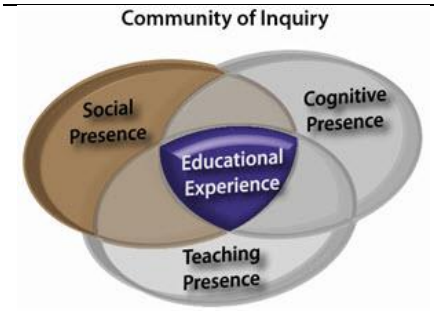
The Community of Inquiry (CoI) framework describes how learning takes place in an online learning environment through the educational transaction that occurs at the intersection of social, teaching, and cognitive presence (Garrison et al., 2000). The authors identified categories for each of the three presences as well as indicators demonstrated through the chat transcripts related to each of the three presences. The authors anticipated that additional indicators would be defined over time. In the next section, each of the three presences is described along with the key elements that make up that presence. The remainder of this overview will focus on the need for additional insights into designing for the CoI.

Garrison, et al. (2000) highlight the significance of the role of the designer in creating a structure to facilitate learning in an online environment. The authors, even in the earliest stages of the development of the CoI model, state the need for "determining how best to design and conduct a computer conference for the purposes of meaningful and worthwhile learning outcomes" (p. 97). In order for the educational transaction to take place, design considerations apply to each of the three presences: social, cognitive, and teaching (direct facilitation).

This job aid begins to attempt to link theory to practice through the examination of experts and their approach to the use of instructional strategies and activities supporting the CoI. Garrison and Cleveland-Innes (2005) suggest that there must be a "specific design goal and interaction facilitated and directed in a sustained manner if deep approaches to learning are to be achieved" (p. 141). Garrison, Anderson and Archer (2010) reflect on findings over a decade ago that indicated students were not achieving integration and resolution of knowledge (phase three and four of the Practical Inquiry Model respectively) and subsequent research regarding Teaching Presence "…teaching presence in the

form of designing learning activities that require solutions and that provide facilitation and direction will ensure students move through the phases of the PIM in a timely manner" (p. 7).

The purpose of this job aid is to link theory and practice by using both the CoI research literature as well as practitioner interviews to identify strategies and activities designers use to create a community of inquiry. For detailed information on the CoI or the CoI Design Framework, please reference the CoI Instructional Strategies and Activities Guide.

CoI Presence	Brief Description and Key Elements
 Figure 2. CoI Framework (CP) by Garrison et al., 2000 Adapted with Permission	**Cognitive Presence** (CP) is defined by Garrison et al. (2000) as the "…the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (p. 89). Garrison and Arbaugh (2007) state that learners construct and confirm meaning through sustained reflection and discourse. Garrison, Anderson and Archer (2001) use the four stages of the Practical Inquiry Model (PIM) to describe how learning occurs in an educational context. The PIM presents a model for moving the learner through a triggering event to exploration, integration, and resolution of the knowledge.
 Figure 3. CoI Framework (SP) by Garrison et al., 2000 Adapted with Permission	**Social Presence** (SP) is defined as "…the ability of participants in the community of inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as 'real people'" (Garrison, et al., 2000, p. 89) and has been the presence studied most extensively (Garrison & Arbaugh, 2007). Social presence has been identified as supporting CP through the development of community. Categories of social presence include affective responses, interactive responses and cohesive responses with12 indicators being initially identified.

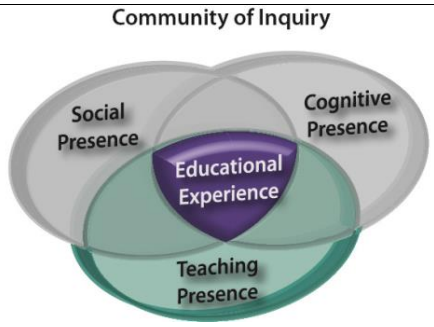


Figure 4. CoI Framework (TP) by Garrison et al., 2000 Adapted with Permission

Teaching Presence (TP) focuses on the design of the educational experience, as well as the facilitation and direct instruction of the learning experience (Garrison, et al., 2000). The instructor's ability to demonstrate teaching presence and develop social presence supports participant's ability to reach deeper levels of inquiry as described in the PIM which allows participants to develop higher levels of cognitive presence (Shea & Bidjerano, 2009). The original categories of TP include design and organization, facilitation, and direct instruction.

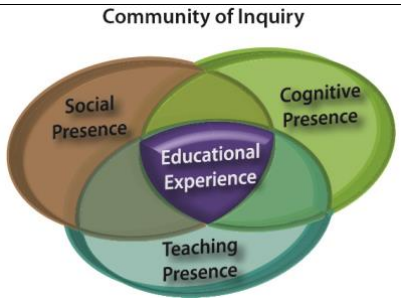


Figure 5. CoI Framework (Educational Experience) by Garrison et al., 2000 Adapted with Permission

Educational Experience is at the center of the CoI model. Garrison et al. (2000) describe the online learning educational experience as an interaction that takes place at the convergence of social, cognitive, and teaching presences. At the intersection of these presences is the educational experience where educational transactions (e.g., learning) occur. Garrison et al. (2000) suggested that one could achieve successful learning experiences in an online learning environment through the interaction of these three presences and early work was done to identify indicators of each of the three presences.

Section II: The CoI Design Framework

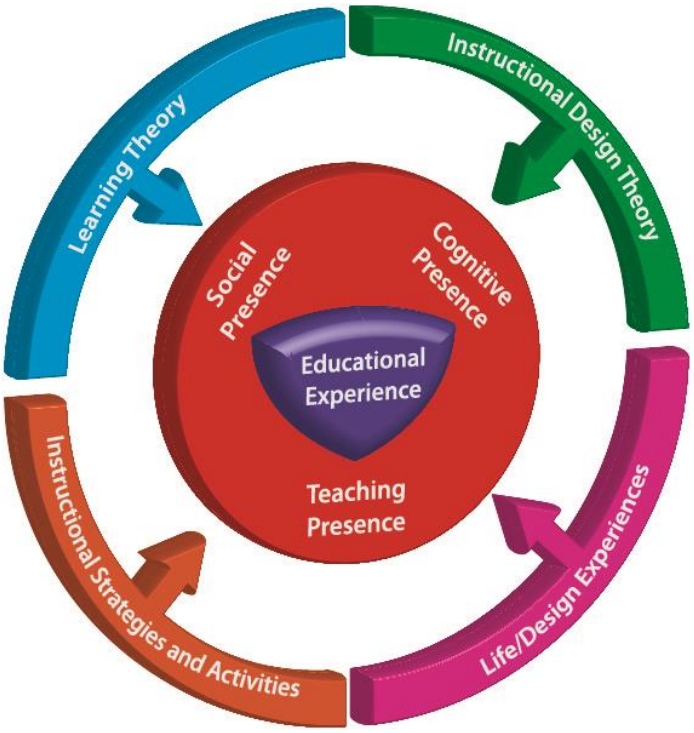


Figure 6 CoI Design Framework

The CoI Design Framework was developed from a series of phenomenological interviews conducted to better understand how practitioners approach designing for a community of inquiry.

Through the interview process, it became apparent that a number of factors impacted the instructional designer's approach to designing for the CoI. After analyzing the interview data, four categories emerged: learning theory, instructional design theory, life/design experiences, and instructional strategies and activities. These categories represent different lenses through which the designers approached their design projects.

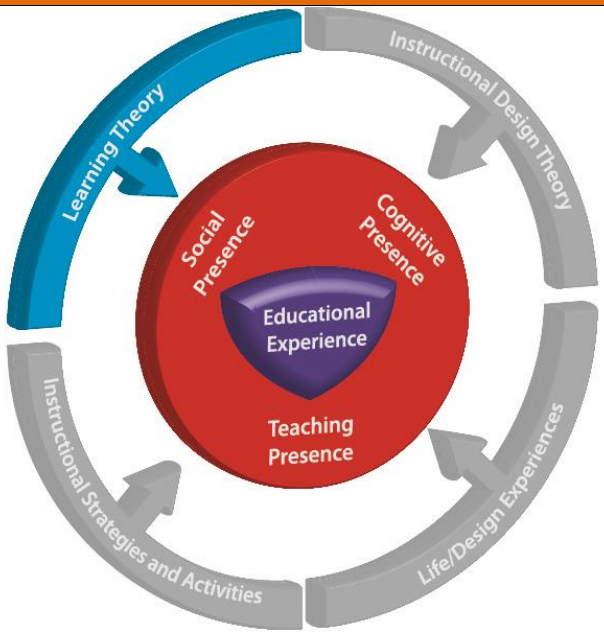
The importance of the CoI Design Framework is that it is a first attempt at bridging the gap between research on the CoI and the practitioner's approach to designing for the CoI. This system provides insight not only into how instructional designers approach the selection of instructional strategies and activities, it also provides instructional design practitioners, who may be new to the CoI, insights as to how their background and experiences can support their design efforts in creating a CoI.

Each of the elements on the outer ring of the CoI Design Framework (Learning Theory, Instructional Design Theory, Life/Design Experiences and Instructional Strategies and Activities) are not dependent on each other, but represent a filter or a perspective from which expert practitioners view the CoI framework. The key is that each designer's system is different and provides a unique perspective from which to design for the CoI.

The remaining question is "what then can we learn from this system"? The answer is that we can continue to understand the influences of each of the

elements of the CoI design framework that potentially impacts the CoI. In addition, we can learn how practitioners are successfully connecting theory in support of developing a CoI. It is anticipated that the link between the elements in the outer ring of the CoI Design Framework will continue to grow over time as more researchers investigate the impact of instructional strategies and activities as measured and demonstrated by the CoI survey similarly to the work conducted by Richardson and Ice (2010).

What follows is a brief explanation of each of the CoI Design Framework elements. In addition, this section includes advice and observations from practitioners on how to view each of the elements. This context allows an instructional designer to look at the design framework from their own perspectives and beliefs and translate those perspectives into the use of instructional strategies and activities that can positively impact the educational transaction that sits at the heart of the CoI framework.

Instructional Strategies and Activities Elements	Practitioner Advice
 Figure 7 Learning Theory	**Learning Theory:** One of the elements that impacted the approach to designing for the CoI was the learning theories familiar to the experts. In many cases, the experts could list the learning theories that they had studied; however, the link between the experts background in learning theories used and how those theories supported the approach to designing for the CoI were not clear. It is important to note, however, that there appeared to be an influence on learning theory and the types of instructional strategies and activities used. For example, one expert who ascribed to adult learning theories was more likely to include learning strategies that supported the adult learner concept such as the learners need to know, prior experiences of the learner, etc. as outlined by Knowles, Holton and Swanson (2011).

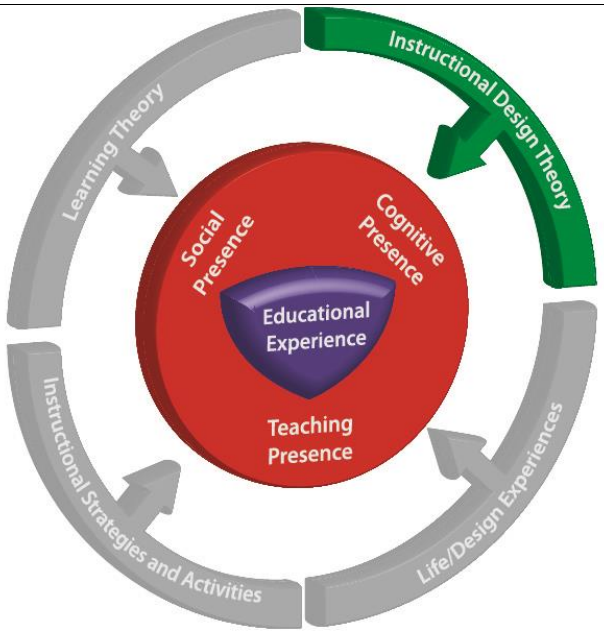


Figure 8:Instructional Design Theory

Instructional Design (ID) Theory: ID theory impacted the approach experts took in designing for the CoI. In addition, other theories (e.g. museum theory) also influenced the designers in their approach to designing for the CoI. The most significant impact in terms of the experts approach to designing for the CoI was their mindset when designing. A background, or exposure to a specific ID theory, influenced the mindset and approach to the types of instructional strategies and activities – including the development of the strategies and activities to support the CoI.

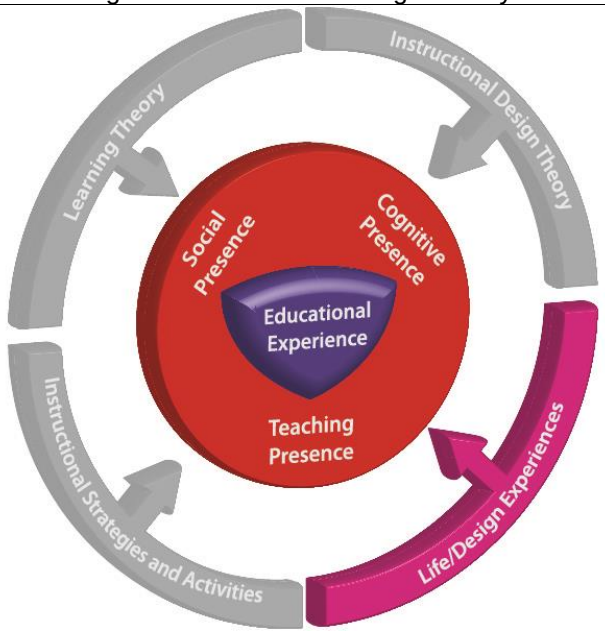


Figure 9 CoI Design Framework: Life / Design Experiences

Life/Design Experiences: One of the strongest links in how expert designers design for the CoI is found in the designers' prior life/design experiences. Each of the designers interviewed did not begin their careers as an instructional designer. As their careers progressed, and their experience in instructional design increased, these life/design experiences heavily influenced their approach to designing for the CoI. Regardless of prior experiences outside of instructional design, those experiences (i.e. the presentation of visual Information, working with special needs children, etc.) heavily influenced the types of design decisions and types of instructional strategies and activities employed.

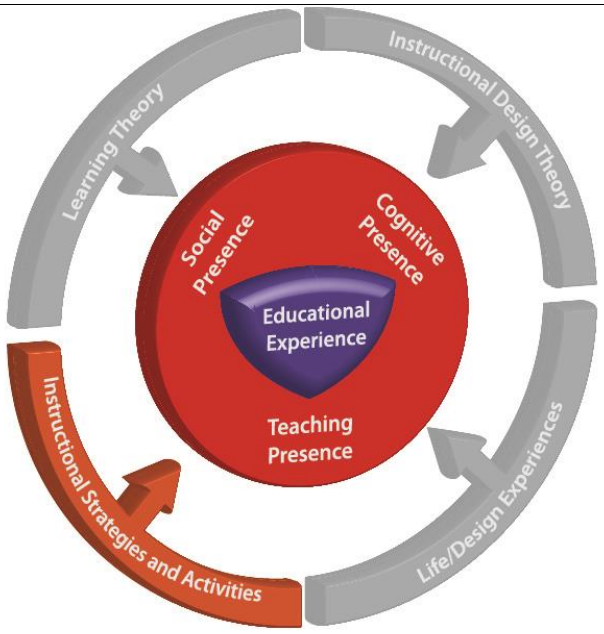


Figure 10 CoI Design Framework: Instructional Strategies and Activities

Instructional Strategies and Activities: The types of instructional strategies and activities used by experts varied. In addition, experts did not look at instructional strategies and activities as a one-to-one match with each of the three CoI presences. Rather, the experts looked at how the instructional strategy or activity impacted the educational experience, which represents the convergence of the three presences. Therefore, an instructional strategy and activity can positively impact one or more of the CoI presences. Experts understood their current technical environments and limitations, often using technologies outside of their academic environments (i.e. LinkedIn, Facebook, Twitter, etc.) to further support the development of the CoI.

Section III: CoI Indicators and Instructional Strategies and Activities

The previous section described how different elements influence designers' decisions and their selection of instructional strategies and activities. The following section provides examples of a variety of CoI indicators and demonstrates examples of how instructional strategies and activities can be used to impact one or more of the presences of the CoI framework.

While there may appear to be a correlation between one of the three presences and a specific instructional strategy or activity, the experiences of practitioners designing for the CoI point out that there is not a one-to-one match. Any given instructional strategy or activity can be used to impact any one or more of the presences. This can be accomplished through what can best be described as the designer's intent.

Designer's intent is defined as the context from which the designer intends to use a specific instructional strategy or activity. Any instructional strategy or activity can be shaped to support any one of the three presences by surrounding the strategy or activity with context and intent. It is within the designer's toolset to identify – using the CoI indicators and their design skills to identify what area of the CoI they wish to impact. This is an abstract concept, however, the experts have described designing for the CoI model as fluid, in part because the design and use of various instructional strategies and activities can positively impact any one or more of the three presences in support of enhancing the educational transaction that occurs as the three presences converge. This fluid environment supports the theoretical basis of the CoI framework being defined as a collaborative constructivist environment.

The importance of studying how IDs create a community of inquiry is the intended effect of the use of various instructional strategies and activities that support the creation of an online community of inquiry. Research studies have shown a strong correlation between teaching presence and social presence (Shea et al., 2010). Studies such as this have implications for instructional designers using the CoI framework as the backdrop for instructional design activities. The intent of this section is to more fully identify and link specific instructional strategies and activities that support one or more of the three CoI presences.

Richardson and Ice (2010) studied the impact of a variety of instructional strategies and activities (i.e. debate, case based and open ended strategies) and

the impact on each of the four phases of the PIM. The authors found that while students preferred open-ended strategy, the result of the use of this strategy resulted in fewer posts reaching the integration and resolution phases of the PIM vs. case-based or debate strategies – which were preferred less by students but produced greater amounts of learning at the integration and resolution phases. The differentiation between strategies used and the impact on each phase of the PIM is an indicator of the need to further identify key instructional strategies and activities that not only impact cognitive presence, but all of the presences that intend to support the learning. Strategies mentioned below come from expert practitioners (no citations) and from the literature (citations included).

The Importance of CoI Indicators

In their research, Garrison et al. (2000) developed a coding template that was used to analyze chat transcripts to identify the existence of each of the three CoI presences. The authors illustrate the relationship across the three elements by demonstrating the link between each of the three presences, the categories that make up each of the presences as well as indicators that demonstrate the presences.

The indicators defined in the early evolution of the CoI were examples only and it was anticipated that future research would build on top of the original indicators. Shea et al. (2010) built on the initial research by Garrison et al. (2000) as well as using other research to refine and develop a more comprehensive list of indicators. The indicators play a significant role for the design of courses using the CoI framework, particularly the types of instructional strategies and activities used to impact one or more of the CoI presences.

Diaz et al. (2010) further expand on the definition and use of indicators by saying that "…each of the presences is, in turn, conceptualized as consisting of multiple elements which are operationalized as observable indicators" (p. 22). As a designer or facilitator of online learning, it is critical to understand that these indicators act as a guide to determining the types of instructional strategies and activities that can be used to develop each of the presences. The types of instructional strategies and activities should reflect the indicators developed by Garrison et al. (2000), updated by Garrison and Arbaugh (2007) and further refined by later research i.e. Shea et al. (2010).

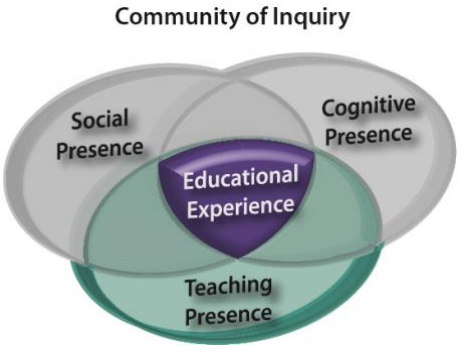
The designer should consider the indicators as a way to identify instructional strategies and activities to support the creation of a CoI. For example, if the designer is looking to develop social presence and ensure that there is open-communication, they should ask themselves "what can I do to

create an environment where they can see risk-free expression occurring?". This would lead the designer to identify and determine instructional strategies and activities that would support evidence of the indicator being demonstrated as part of the course.

The challenge for practitioners is that researchers are using the term CoI indicators from multiple perspectives. The original research (Garrison et al., 2000) and subsequent updates of indicators by Garrison and Arbaugh (2007) used indicators to determine the existence of each of the presences. Boston et al., (2009) used the CoI survey and describe the CoI survey questions as CoI survey indicators. The authors have used CoI survey indicators to explore the relationship between the CoI and retention in online learning. This, to some degree could cause confusion on the part of designers new to the CoI.

Experts participating in the validation of the job aid discussed the importance of using indicators, as defined by Garrison et al. (2000), as part of the design process. In addition, during the discussion of designing for the CoI the experts explained that the CoI survey should *not* be used as part of the design process because it is so heavily focused on the perspective of the teacher. In addition, the CoI survey takes a retrospective view of what occurred in the past as part of the course. The designer should use the indicators in designing instructional strategies and activities to support the development of each of the three CoI presences. The next section of the job aid includes perspectives on each of the Presences, Categories and most importantly CoI indicators mapped to potential Instructional Strategies and Activities.

Teaching Presence Indicators and Sample Instructional Strategies and Activities



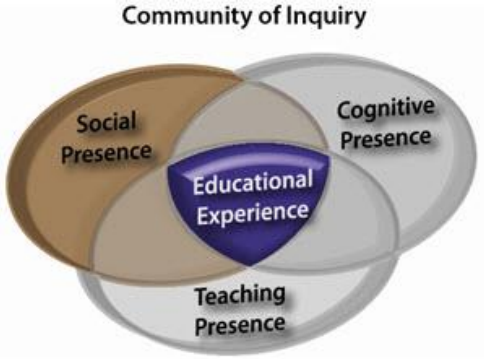
Teaching Presence categories include Design and Organization, Facilitation and Direct Instruction. Use the indicators to assess your design to identify any gaps.

Sample instructional strategies and activities from expert practitioners as well as from the literature are listed to provide context for the types of strategies and activities that can support the indicators.

Presence Categories	Sample Instructional Strategies and Activities
Design and Organization Indicators Garrison et al., 2000 ▪ Defining and initiating discussion topics Garrison & Arbaugh, 2007 ▪ Setting curriculum and method Shea, et al., 2010 ▪ Setting curriculum and communicating assessment methods to be used in the course ▪ Establishing time parameters ▪ Utilizing medium effectively ▪ Establishing netiquette ▪ Making macro-level comments about course content	▪ Using consistency and course structure fosters peace of mind ▪ Include a repository for course information and make it available prior to class and include core class materials such as the syllabus, objectives of the course, grading rubrics, etc. ▪ Provide the ability for students to practice with the technology in a safe area prior to launching them into an interactive discussion. ▪ Set expectations and boundaries including how and when you will respond in the forums. ▪ Establishing curriculum content, learning activities and timelines, monitoring collaboration and reflection ensuring that the CoI achieves the intended outcomes. Diagnose and guide the community towards the stated outcomes by providing timely information (Garrison et al., 2010). ▪ Clear communication, due dates and time parameters, course goals, topics, etc. and instructions on how to participate (Shea et al., 2006). ▪ Define clear expectations, select manageable content, structure appropriate collaborative and individual activities, and assess against the goals and outcomes (Garrison & Cleveland-Innes, 2005).

Facilitating Discourse Indicators Garrison et al., 2000 ▪ Sharing personal meaning Shea et al., 2010 ▪ Identifying areas of agreement/disagreement ▪ Seeking to reach consensus ▪ Encouraging, acknowledging or reinforcing student contributions ▪ Setting climate for learning ▪ Drawing in participants, prompting discussion ▪ Presenting follow-up topics for discussion (ad hoc) ▪ RE-Focusing discussion on specific issues ▪ Summarizing discussion	▪ Use scaffolding techniques to identify where the learning is heading and then to pull together a summary of the learning prior to moving onto the next module. ▪ Include students in the facilitation of material through the establishment of summarizing postings and to make meaning of the current conversation(s). ▪ Establish multiple learning paths and opportunities beyond the established course content to learn more if desired. ▪ Consider multiple learning styles as you facilitate (i.e. audio feedback / commentary). ▪ Clearly establish criteria and expectations on both individual and group assignments as part of the repository of class materials and reiterate prior to each assignment. ▪ Student responsibility for facilitating discourse (Akyol & Garrison, 2008)
Direct Instruction Indicators ▪ Providing valuable analogies ▪ Offering useful illustrations ▪ Conducting supportive (informative) demonstrations ▪ Supplying clarifying information ▪ Making explicit reference to outside material	▪ Design checkpoints for instructor(s) to redirect and/or provide additional context ▪ Use tools both within your learning technology environment as well as outside (i.e. email) to provide feedback. ▪ Set expectations early in the class on when and how frequently instructors will provide feedback. ▪ Book-Ends (i.e. Scaffolding of learning).

Social Presence Indicators and Sample Instructional Strategies and Activities



Social Presence is comprised of three categories - Affective Expression, Open Communication and Group Cohesion. Use the indicators to assess your design to identify any gaps.

In addition, sample instructional strategies and activities from expert practitioners and the literature are listed to provide context for the types of strategies and activities that can support the indicators.

Presence Categories	Sample Instructional Strategies and Activities
Affective (Emotional) Expression (AF) Indicators Garrison et al., 2000 ▪ Emoticons Shea et al., 2010 ▪ Expressing emotions ▪ Use of humor ▪ Self-disclosure ▪ Use of unconventional expressions to express emotion ▪ Expressing value	▪ Use of Google maps allowing students to post their hometown and/or other interests ▪ Use of Wordles using characteristics to visually represent concepts and textual information ▪ Personal narratives as an introductory assignment ▪ User of social media i.e. Facebook, Twitter, etc. to provide virtual spaces to further develop relationships and share experiences ▪ Icebreaking activities – getting to know you introductory exercises
Open Communication (OC) Indicators Garrison et al., 2000 ▪ Risk-free expression Shea et al., 2010 ▪ Continuing a thread ▪ Quoting from others' messages ▪ Referring explicitly to others' messages ▪ Asking questions ▪ Complimenting, expressing appreciation ▪ Expressing agreement ▪ Expressing disagreement ▪ Personal advice	▪ From a course design perspective, create welcome messages, include student profiles, incorporate audio, limit class size, and structure collaborative learning activities (Aragon, 2003) ▪ Providing cues for instructors on how and when to provide guidance to participants ▪ "Hallway" option for students to meet informally with others and the professor(s) to ask questions related to the class ▪ Use of Audio (i.e. feedback, introductions, etc.) ▪ Use of Social Media as a Virtual Hallway for student-to-student and student-professor interaction ▪ Use of social media tools including Facebook, Twitter, etc.

Presence Categories	Sample Instructional Strategies and Activities
Group Cohesion (CH) Indicators Garrison et al., 2000 ▪ Encouraging collaboration Shea et al., 2010 ▪ Vocatives (addressing or referring to participants by name) ▪ Addresses or refers to the group using inclusive pronouns ▪ Phatics, salutations and greetings (communication that serves a purely social function; greetings or closures) ▪ Social sharing ▪ Course reflection	▪ Students-only course discussion forums that allow students to interact and provides an area for students to support each other ▪ Train students on asking direct questions in postings, broaden direct questions of the intended audiences i.e. for more than one person and/or for both instructors and students, and the impact of length of the direct question on interactivity of postings i.e. extremely long postings do not necessarily correlate with low interactivity (Williams & Humphrey, 2007)

Cognitive Presence Indicators and Sample Instructional Strategies and Activities

Cognitive Presence is divided into four categories that comprise the Practical Inquiry Model – triggering event, exploration, integration and resolution. Use the indicators to assess your design to identify any gaps.

In addition, sample instructional strategies and activities from expert practitioners and the literature are listed to provide some context for the types of strategies and activities that can support the indicators.

Presence Categories	Sample Instructional Strategies and Activities
Triggering Event Indicators Garrison et al., 2000 ▪ Sense of puzzlement Shea et al., 2010 ▪ Recognize problem	▪ Statement of a problem ▪ Project-based learning – i.e. assigning a design problem (Ling Koh, et al., 2010) ▪ Asking questions or creating messages that take discussion in new direction or presenting background information that culminates in a question (Garrison, et al., 2001)
Exploration Indicators Garrison et al., 2000 ▪ Information exchange Shea et al., 2010 ▪ Exploration within the community ▪ Exploration within a single message ▪ Information exchange ▪ Suggestions for consideration ▪ Leaps to conclusions ▪ Integration among group members	▪ Scenario-based learning ▪ Use or created Linked-In groups to allow participants to explore additional insights into a specific topic area ▪ Providing additional learning opportunities ▪ Project-based learning – i.e. structuring of project milestones (Ling Koh, et al., 2010) ▪ Student-led summary of postings over a period of time with the ability for other students to post questions and responses ▪ Subject Matter Expert videos (stories of specific experiences) and thought-provoking questions (Archibald, 2010)
Integration Indicators Garrison et al., 2000 ▪ Connecting ideas Shea et al., 2010 ▪ Integration among group members ▪ Integration within a single message (response to a prompt) ▪ Connecting ideas (synthesis) ▪ Creating solutions ▪ Vicarious application to real world testing solutions	▪ Student-synthesized discussion threads ▪ Case-Based Strategy (Richardson & Ice, 2010) ▪ Debate Strategy (Richardson & Ice, 2010) ▪ Open-ended Strategy (Richardson & Ice, 2010) ▪ Injection of new/diverse resources (Akyol & Garrison, 2008) ▪ Project-based learning – i.e. students articulate learning through the development of artifacts (Ling Koh, et al., 2010)

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Presence Categories	Sample Instructional Strategies and Activities
Resolution Indicators Garrison et al., 2000 ▪ Apply new ideas Shea et al., 2010 ▪ Vicarious application to real world testing solutions ▪ Defending solutions	▪ Case-Based Strategy (Richardson & Ice, 2010) ▪ Debate Strategy (Richardson & Ice, 2010) ▪ Open-ended Strategy (Richardson & Ice, 2010) ▪ Project-based learning – i.e. facilitate to resolution by assessing the stage of knowledge construction (Ling Koh, et al., 2010)

Summary

The goal of this job aid is to provide insight for designers in the selection of instructional strategies and activities to support the creation of a Community of Inquiry. The job aid provides insight into the CoI framework and introduces a new framework: The CoI Design Framework. The CoI Design Framework provides insights into how Learning Theory, Instructional Design Theory, Life/Design Experiences and Instructional Strategies and Activities play into the design decisions made expert practitioners designing for the CoI. Finally, this job aid provides insight to practitioners on the link between the CoI presences, indicators, and the types of instructional strategies and activities that can assist the designer in developing each of the three presences. For more detailed information on these topics, please refer to the Community of Inquiry (CoI) Instructional Strategies and Activities Guide.

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Appendix C

Institutional Review Board Documents

NOVA SOUTHEASTERN UNIVERSITY

MEMORANDUM

To: Stephan D. Junion, Ed.S.
Graduate School of Computer and Information Sciences

From: Ana I. Fins, Ph.D.
Chair, Institutional Review Board

Date: March 4, 2011

Re: *Instructional Design Strategies and Activities that Inform the Community of Inquiry (Col)*
Research Protocol No. 01111111Exp.

I have reviewed the revisions to the above-referenced research protocol by an expedited procedure. On behalf of the Institutional Review Board of Nova Southeastern University, *Instructional Design Strategies and Activities that Inform the Community of Inquiry (Col)* is approved in keeping with expedited review categories #6 and #7. Your study is approved on **March 4, 2011** and is approved until **March 3, 2012. The study is approved with the following revision. Once you receive a copy of the signed consent form from the subjects, please send back to them either via postal mail or e-mail a copy of the fully executed consent form (one that has both subject signature and your signature.** You are required to submit for continuing review by **February 3, 2012**. As principal investigator, you must adhere to the following requirements:

1) CONSENT: You must use the stamped (dated consent forms) attached when consenting subjects. The consent forms must indicate the approval and its date. The forms must be administered in such a manner that they are clearly understood by the subjects. The subjects must be given a copy of the signed consent document, and a copy must be placed with the subjects' confidential chart/file.

2) ADVERSE EVENTS/UNANTICIPATED PROBLEMS: The principal investigator is required to notify the IRB chair of any adverse reactions that may develop as a result of this study. Approval may be withdrawn if the problem is serious.

3) AMENDMENTS: Any changes in the study (e.g., procedures, consent forms, investigators, etc.) must be approved by the IRB prior to implementation.

4) CONTINUING REVIEWS: A continuing review (progress report) must be submitted by the continuing review date noted above. Please see the IRB web site for continuing review information.

5) FINAL REPORT: You are required to notify the IRB Office within 30 days of the conclusion of the research that the study has ended via the IRB Closing Report form.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: Dr. Ling Wang
Dr. Martha Snyder

Institutional Review Board
3301 College Avenue • Fort Lauderdale, Florida 33314-7796
(954) 262-5369 • Fax: (954) 262-3977 • Email: *irb@nsu.nova.edu* • Web site: *www.nova.edu/irb*

NOVA SOUTHEASTERN UNIVERSITY
Graduate School of Computer and Information Sciences

NSU

Consent Form for Participation in the Research Study Entitled Instructional Strategies and Activities that Inform the Community of Inquiry (CoI) Study

Funding Source: None.

IRB protocol #: 01111111Exp.

Principal investigator(s)
Stephan D. Junion Ed.S.
2504 Garrett Point Road
La Grange, KY 40031
(319) 431-5475

Co-investigator(s)
Martha Snyder Ph.D.
3301 College Avenue
DeSantis Building Room 4056
Ft. Lauderdale, FL 33314
(954) 262-2074

For questions/concerns about your research rights, contact:
Human Research Oversight Board (Institutional Review Board or IRB)
Nova Southeastern University
(954) 262-5369/Toll Free: 866-499-0790
IRB@nsu.nova.edu

Site Information
Site of the study will be determined between the researcher and the participants.

What is the study about?
The study is designed to identify instructional strategies and tactics that inform the CoI. You have been nominated as an expert practitioner in the design and development of online learning using the CoI framework.

The procedures for this study include:

- A series of three telephonic interviews, each lasting up to 1.5 hours
- Interviews will be spaced apart between 3 and 7 days
- Interviews will be recorded

Initials: _____ **Date:** _____ **Page 1 of 4**

Why are you asking me?
The reason for this study is to provide practitioners of instructional design insight into designing and developing in online environments using the Community of Inquiry (CoI) framework through the development of the following:

- A framework or model that can be used in the selection of instructional strategies.
- A guide that can be used by practitioners designing and developing courses using the CoI.
- Job aid(s) that support the practitioner in the design of their courses to support increased levels of social, cognitive and teaching presence.

You have been nominated by an expert in the CoI framework.

What will I be doing if I agree to be in the study?
The study is designed to identify instructional strategies and tactics that inform the CoI. You have been nominated as an expert practitioner in the design and development of online learning using the CoI framework. You will be participating in a series of three interviews.

The procedures for this study include:

- A series of three telephonic interviews, each lasting up to 1.5 hours for a total of 4.5 hours
- Interviews will be spaced apart between 3 and 7 days according to the participant's schedule
- Interviews will be recorded in order to create written transcripts for analysis

Is there any audio or video recording?
Each interview will be recorded using an electronic recording device and/or teleconference recording capabilities. This audio recording will be available to be heard by the researcher, the IRB, any granting agencies, and the following: dissertation chair and the Primary Investigator's committee. The recorded interviews may be used in the classroom or as part of conferences as a tool to teach the interviewing techniques. Use of the recordings in an educational setting will be limited to the PI, Dissertation Chair and Committee (Dr. Martha Snyder, Dr. Ling Wang and Dr. Laurie Dringus) for up to 36 months following the completion of the study. The recording will be transcribed by the Primary Investigator.

Interview 1: Focused life history interview. The focus of this interview is on how participants came to their role as an instructional designer, designing and developing for the CoI.

Interview 2: Details of the experience interview. The focus of interview two will be to uncover participants' present instructional design experiences and how participants use instructional strategies and activities to inform the CoI.

Interview 3: Reflection on the meaning interview. The final interview will focus on reflection and making meaning from the context of the two previous interviews.

The recording will be kept secure in a safe deposit box in the PI's hometown. The recording will be kept for 36 months following the acceptance of the PIs Dissertation Report and destroyed after that time by erasing the digital recording and destroying backup CD ROMs. Because your voice will be potentially identifiable by anyone who hears the recording, your confidentiality for things you say (or do) on the recording cannot be guaranteed although the researcher will try to limit access to the tape as described in this paragraph.

What are the dangers to me?
Risks to the study are minimal and include confidentiality. Confidentiality cannot be guaranteed; however, the researcher will limit access to the recordings and take precautions to limit access to the recordings as described previously. The procedures or activities in this study may have unknown or unforeseeable risks.

If you have any questions about the research, your research rights, or have a research-related injury, please contact Stephan D. Junion (Principal Investigator) at (319) 431.5475, Dr. Martha (Marti) Snyder (Co-investigator) at (954) 262.2074. You may also contact the IRB at the numbers indicated above with questions as to your research rights.

Are there any benefits for taking part in this research study?
The benefits of participating in this study include sharing your expertise with practitioners who are designing and developing online learning using the CoI framework. In addition, as a participant in this study, you will receive copies of the final outputs resulting from the completed study.

Will I get paid for being in the study? Will it cost me anything?
Costs to the participant will include time to conduct each of the three interviews. The estimated amount of total time for you, as a participant, will be 4.5 hours.

To thank you for participating in the research study, you will receive a $25 gift card to Amazon.com upon completion of the third interview. In order to receive this gift card, participants will need to provide their work or home mailing address and complete all of the interviews.

How will you keep my information private?
All information obtained in this study is strictly confidential unless disclosure is required

by law. The IRB, regulatory agencies, and the dissertation chair may review research records.

Procedures for protecting privacy include using pseudonyms and assigning unique identifiers to each participant. Information used to identify participants will be locked in a safe-deposit box through the duration of the study. Upon completion of the study and acceptance of the dissertation report, all data will be destroyed 36 months and one day following approval of the dissertation report.

What if I do not want to participate or I want to leave the study?
You have the right to leave this study at any time or refuse to participate. If you do decide to leave or you decide not to participate, you will not experience any penalty or loss of services you have a right to receive. If you choose to withdraw, any information collected about you **before** the date you leave the study will be kept in the research records for 36 months from the conclusion of the study and may be used as a part of the research.

Other Considerations:
If significant new information relating to the study becomes available, which may relate to your willingness to continue to participate, this information will be provided to you by the investigators.

Voluntary Consent by Participant:
By signing below, you indicate that

- this study has been explained to you
- you have read this document or it has been read to you
- your questions about this research study have been answered
- you have been told that you may ask the researchers any study related questions in the future or contact them in the event of a research-related injury
- you have been told that you may ask Institutional Review Board (IRB) personnel questions about your study rights
- you are entitled to a copy of this form after you have read and signed it
- you voluntarily agree to participate in the study entitled Instructional Design Strategies and Activities that Inform the Community of Inquiry (CoI) Study

Participant's Signature: _____ Date: _____

Participant's Name: _____ Date: _____

Signature of Person Obtaining Consent: _____

Date: _____

NOVA SOUTHEASTERN UNIVERSITY
Graduate School of Computer and Information Sciences

NOVA Institutional Review Board
Approval Date: MAR 0 4 2011
Continuing Review Date: MAR 0 3 2012

NSU

Consent Form for Participation in the Research Study Entitled Instructional Strategies and Activities that Inform the Community of Inquiry (CoI) Study

Funding Source: None.

IRB protocol #: **01111111Exp.**

Principal investigator(s)
Stephan D. Junion Ed.S.
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For questions/concerns about your research rights, contact:
Human Research Oversight Board (Institutional Review Board or IRB)
Nova Southeastern University
(954) 262-5369/Toll Free: 866-499-0790
IRB@nsu.nova.edu

Site Information
Site of the study will be determined between the researcher and the participants.

What is the study about?
The study is designed to identify instructional strategies and tactics that inform the CoI. You have been nominated as an expert of the CoI framework to validate the outputs developed from earlier phases of the study.

The high-level procedures for this study include the following:

- Three rounds of the Delphi study
- Each round of the Delphi study will be a minimum of two weeks apart
- Detailed information on your role as a panel member follows.

Initials: _____ **Date:** _____ **Page 1 of 5**

Why are you asking me?
The reason for this study is to provide practitioners of instructional design insight into the design and development of online environments using the Community of Inquiry (CoI) framework through the development of the following:

- A framework or model that can be used in the selection of instructional strategies.
- A guide that can be used by practitioners designing and developing courses using the CoI.
- Job aid(s) that support the practitioner in the design of their courses to support increased levels of social, cognitive and teaching presence.

You have been nominated by an expert in the CoI framework as a Delphi panel member. The Delphi panel will be comprised of six CoI experts.

What will I be doing if I agree to be in the study?
The study is designed to identify instructional strategies and tactics that inform the CoI. You will be participating in three rounds of the Delphi study. Explanations of each round follow. Please note that for Delphi panel members, 13 – 18 hours of time will be invested over a period of approximately six to ten weeks.

Round 1 of the Delphi study:
During the first round of the Delphi panel, members will be sent a package and asked open-ended questions regarding the following:

1. The CoI Instructional Strategies and Activities Guide
2. The framework outlined in the guide
3. The instructional strategies section
4. The selecting instructional strategies job aid
5. Areas members recommend the most focus on revisions

Round 2 of the Delphi study:
The second round of the Delphi study will include a revised packet of information that will be sent to participants via email. Included in this packet will be a letter with the remaining deadlines, the revised packet of work products, a questionnaire to be filled out while reviewing the work products and a summary of the feedback from round one. The questions for this round will include a four point Likert scale (strongly agree, agree, disagree and strongly disagree). The questionnaire will also include question-specific comments that were made by the panelists in round 1.

Framework Statements
1. The framework provides insight into how instructional strategies support the CoI.
2. The framework is useful in knowing how instructional strategies support each of the three CoI presences.

CoI Instructional Strategies and Activities Guide Statements

1. The guide provides useful information to new IDs in the selection of instructional strategies and activities that inform the CoI.
2. The guide provides useful information for experienced IDs in the selection of instructional strategies and activities that inform the CoI.
3. The sections flow in an appropriate manner.
4. Each section provides complete information.
5. The CoI Instructional Strategies and Activities Guide will enable novice IDs to identify instructional strategies that can inform the CoI.
6. The CoI Instructional Strategies and Activities Guide will enable experienced IDs to identify instructional strategies that can inform the CoI.

Job Aid Statements

1. The job aid is useful in supporting the practitioner in identifying instructional strategies and activities that can be used to inform the CoI.
2. The job aid is structured in a way that is easy to understand and find information.
3. The job aid will enable IDs to identify instructional strategies that can inform the CoI.

Round 3 of the Delphi study:
The final round of the Delphi study will include a revised packet of information based on the feedback in round two including an updated framework, guide and job aid(s). The goal of round three will be to reach consensus on the overall package provided to panel members.

Is there any audio or video recording?
This phase of the research project does not include any audio or video recording.

What are the dangers to me?
Risks to the study are minimal and include confidentiality. Confidentiality cannot be guaranteed. The procedures or activities in this study may have unknown or unforeseeable risks.

If you have any questions about the research, your research rights, or have a research-related injury, please contact Stephan D. Junion (Principal Investigator) at (319) 431.5475, Dr. Martha (Marti) Snyder (Co-investigator) at (954) 262.2074. You may also contact the IRB at the numbers indicated above with questions as to your research rights.

Are there any benefits for taking part in this research study?
As a participant of the Delphi panel, you will receive copies of the final outputs resulting

from the completed study.

Will I get paid for being in the study? Will it cost me anything?
Costs to the participant will include time to conduct each of the three Delphi rounds. The total estimated amount of time for you, as a panel member, will be approximately 13 – 18 hours.

To thank you for participating in the research study, you will receive a $25 gift card to Amazon.com upon completion of the third round of the Delphi study. In order to receive this gift card, participants will need to provide their work or home mailing address and complete all three rounds of the study.

How will you keep my information private?
All information obtained in this study is strictly confidential unless disclosure is required by law. The IRB, regulatory agencies, and the dissertation chair may review research records.

Procedures for protecting privacy include using pseudonyms and assigning unique identifiers to each participant. Information used to identify participants will be locked in a safe-deposit box through the duration of the study. Upon completion of the study and acceptance of the dissertation report, all data will be destroyed 36 months and one day following approval of the dissertation report.

What if I do not want to participate or I want to leave the study?
You have the right to leave this study at any time or refuse to participate. If you do decide to leave or you decide not to participate, you will not experience any penalty or loss of services you have a right to receive. If you choose to withdraw, any information collected about you **before** the date you leave the study will be kept in the research records for 36 months from the conclusion of the study and may be used as a part of the research.

Other Considerations:
If significant new information relating to the study becomes available, which may relate to your willingness to continue to participate, this information will be provided to you by the investigators.

Voluntary Consent by Participant:
By signing below, you indicate that

- this study has been explained to you
- you have read this document or it has been read to you
- your questions about this research study have been answered
- you have been told that you may ask the researchers any study related questions in the future or contact them in the event of a research-related injury
- you have been told that you may ask Institutional Review Board (IRB) personnel

questions about your study rights

- you are entitled to a copy of this form after you have read and signed it
- you voluntarily agree to participate in the study entitled Instructional Design Strategies and Activities that Inform the Community of Inquiry (CoI) Study

Participant's Signature: _____ Date: _____

Participant's Name: _____ Date: _____

Signature of Person Obtaining Consent: _____

Date: _____

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board
Approval Date: MAR 0 4 2011
Continuing Review Date: MAR 0 3 2012

Initials: _____ **Date:** _____

Appendix D

Phenomenological Interview Emails

Email #1:
The following email was sent initially to identify participants for phenomenological interviews.

From: Stephan Junion
Sent: Sunday, March 13, 2011 09:30 PM
To: junion@nova.edu <junion@nova.edu>
Cc: smithmt@nova.edu <smithmt@nova.edu>

Subject: Request for Instructional Designer Nominations: Instructional Strategies and Activities that Inform the Community of Inquiry (CoI) Framework

Important Note:
This is the first of two emails you will receive regarding requests for nominating participants for this study. This first email requests nominations of expert instructional designers for a series of interviews. The second email will arrive within approximately one month and request support in identifying experts to support a Delphi panel to review the outputs created from the interviews.

Background on the Study:
My name is Stephan Junion. I am a doctoral student in the Graduate School of Computer and Information Sciences at Nova Southeastern University. My dissertation chair is Dr. Martha (Marti) Snyder. Drs. Laurie Dringus and Ling Wang are serving on my dissertation committee. I am working on my dissertation, "Instructional Design Strategies and Activities that Inform the Community of Inquiry (CoI) Framework." I need your support in identifying instructional designers who are very familiar with the CoI. Based on your nomination, I will ask these instructional designers to participate in a series of interviews about their experience as an instructional designer and specifically how they design activities that align with the Community of Inquiry (CoI) framework.

Interview Purpose:
The purpose of the phenomenological interviews will be to identify how expert designers use learning and design theories in their day-to-day work. This study will analyze what instructional strategies and activities designers who design for the CoI use and why they use these particular strategies and activities.

Nomination Criterion:
Please use the criterion below as you nominate up to five expert designers.

1 - Recommended by a published CoI author.
2 - Minimum of 10 years instructional design and development experience with at least 3 years of ID experience in designing learning in asynchronous environments using the CoI framework.
3 - Actively designing and developing curriculum for online learning environments in a graduate setting in North America. These designers may hold titles such as instructional designer, instructor, assistant professor, associate professor, and professor.

4 - The participant is well-versed in CoI framework and how each of the three presences supports the educational transaction.

How to Nominate:
After using the criterion, please identify and recommend up to five expert designers by sending the researcher an email to junion@nova.edu. Please include each nominee's name and email address in your response.

Nomination / Selection Timeline:
April 4, 2011: Please have your nominations sent to me by this date.
April 18, 2011: Selection of potential nominees will be complete and an initial outreach to candidates will be conducted.
April 25, 2011: Final selection of interview candidates will be complete.

Questions:
Should you have any questions, please send an email to the researcher, Stephan Junion – junion@nova.edu and carbon copy the dissertation chair – Dr. Marti Snyder at smithmt@nsu.nova.edu.

Regards,

Stephan D. Junion
junion@nova.edu
319.431.5475

Email #2:
From: Stephan Junion
Sent: Sunday, April 17, 2011 08:56 PM
To: junion@nova.edu <junion@nova.edu>
Cc: smithmt@nova.edu <smithmt@nova.edu>

Subject: Request for Assistance – Community of Inquiry Study: Please reply by April 30, 2011

Thank you for your support in my study of the Community of Inquiry (CoI) Framework!

You may have recently received an email from me regarding my study on Instructional Strategies and Activities that Inform the Community of Inquiry (CoI) Framework. After receiving guidance from several published authors of the CoI, we've revised our criterion for the study. Please read for further details and an opportunity to participate.

You are invited to participate in a dissertation research study about Instructional Strategies and Activities that Inform the Community of Inquiry Framework.

You may be eligible to participate if:

- you have a minimum of five years of instructional design (ID) experience
- you have at least three years of experience designing learning in an asynchronous environment and are actively designing and developing curriculum for online learning environments in a graduate setting in North America
- you are familiar with the CoI framework and how each of the three presences supports the educational transaction

If you are selected, you will be asked to participate in a series of three telephone interviews about how you use learning and design theories in your day-to-day work and specifically, what strategies and activities you use that support the three CoI presences (social, cognitive, teaching) in the design of online graduate courses.

If you or someone you know meet the criterion above, please reply to me by April 30, 2011.

Questions: Should you have any questions, please send an email to the researcher, Stephan Junion – junion@nova.edu and carbon copy the dissertation chair – Dr. Marti Snyder at smithmt@nsu.nova.edu.

Regards,

Stephan D. Junion
junion@nova.edu
319.431.5475

Appendix E

CoI Study Flyer

Participants Needed for Instructional Design Study

You are invited to participate in a dissertation research study about instructional strategies and activities that inform the Community of Inquiry (CoI) framework.

You may be eligible to participate if:

- you have a minimum of five years of instructional design (ID) experience.
- you have at least three years of experience designing learning in an asynchronous environment and are actively designing and developing curriculum for online learning environments in a graduate setting in North America.
- you are familiar with the CoI framework and how each of the three presences supports the educational transaction.

If you are selected, you will be asked to participate in a series of three telephone interviews about how you use learning and design theories in your day-to-day work and specifically, what strategies and activities you use that support the three CoI presences (social, cognitive, teaching) in the design of online graduate courses.

If you are interested in participating, please contact Stephen D. Junion by **April 30, 2011**.

Stephen D. Junion
Nova Southeastern University
junion@nova.edu
(319) 431-5475

Appendix F

Nomination Email for Interviews

My name is Stephan Junion. I am a doctoral student in the Graduate School of Computer and Information Sciences at Nova Southeastern University. I am working on my dissertation, "Instructional Design Strategies and Activities that Inform the Community of Inquiry (CoI) Framework."

Purpose of this Communication:
I am contacting you because you have been recommended by an expert in the Community of Inquiry Framework to participate the first phase of my study.

Please read the remainder of this email for additional information about the study and your role should you choose to participate.

Your Role in the Study:
Your role in this study will be to participate in a series of interviews about your experience as an instructional designer and specifically how you design activities that align with the Community of Inquiry (CoI) framework.

Request for Review and Response:
Please review this communication and the attached consent form and reply to me within one week of receiving this email to let me know whether or not you will participate in the study.

If you agree to participate, you will need to follow the instructions below regarding the informed consent form.

Interview Purpose:
The purpose of the phenomenological interviews will be to identify how expert designers use learning and design theories in their day-to-day work. This study will analyze what instructional strategies and activities designers who design for the CoI use and why they use these particular strategies and activities.

Interview Structure:
A series of three interviews will be conducted. Each interview will last up to a maximum of 1.5 hours over the course of 3 – 7 days. The maximum estimated amount of time will be 4.5 hours.

Informed Consent & Additional Details of the Study:
The consent form to participate in the study is attached in this email and provides extensive details regarding the interview process. I recommend that you review this consent form and please contact me should you have any questions.

Next Steps:
Please review the attached consent form. Should you choose not to participate in the study, please respond to me within one week of receiving this email.

Should you agree to participate in the study, please do the following:

1. Respond to me within one week of receiving this email to confirm that you would like to participate. Please include any questions that you have about the study. In addition, you
may reach me via cell phone (319-431-5475) to discuss any questions.
2. Print out the consent form and do the following:
    a. Initial and date the bottom of each page of the consent form.
    b. On page four, please sign next to the "participant's signature" line, print your name next to the "participant's name" line and write in the date you signed the consent form.
    c. Optional: Make a copy of the signed consent form for your records.
    d. Mail the signed consent form to me at the following address:

    Stephan D. Junion
    2504 Garrett Point Road
    La Grange, KY 40031

3. Once I receive the signed consent form, I will sign, date and store in a safe deposit box for security.
4. I will call to schedule your interviews within two weeks upon receipt of the consent form to schedule your series of interviews.

Sincerely,

Stephan D Junion
junion@nova.edu
319.431.5475

Appendix G

Sample Transcription of Interviews

Sample Transcription #1

You're·not·constrained·to·"You·can·only·use·these·activities·to·resolve·that·part·of·the·checklist·or·to·make·the·check·on·this·checklist."·And·I·think·it·also·provides·an·opportunity·to·---·we·were·just·talking·about·multiple·learning·styles·and·you·can·---·it·goes·naturally·and·harmoniously·with·so·many·different·multiple·styles,·multiple·intelligences·and·learning·styles,·and·you·can·---·I·don't·really·feel·---·even·though·it·is·{constructionive}·based,·I·really·don't·think·that·it·is·a·subject-matter·specific·type·of·framework.·I·think·it·can·easily·apply·to·any·framework·---·any·subject·matter.·It·doesn't·matter·if·we're·talking·astrophysics·or·English·101.¶

¶

Interviewer: → Right.·It's·kind·of·that·---·and·I·used·to·work·in·the·military·or·with·aerospace,·so·they're·the·military;·it's·that·kind·of·black·box·where·you·can·put·what·you·want·into·it·and·come·out·with·something·that's·meaningful·and·effective.¶

¶

Interviewee: → Yes.·I·do·think·so.·I·think·that·you·can·incorporate·and·definitely·go·through·the·entire·set·of·categories·and·indicators,·and·using·the·template·for·the·COI,·the·framework·in·any·core·subject.·If·you·have·an·individual·who's·pushing·against·it,·you·just·rearrange·how·you·are·doing·the·actual·learning·activities,·to·make·that·happen.·What·is·it·that·you·need·to·do·to·make·those·items·happen?·So,·I·think·that·it's·a·fantastic·framework,·and·it…¶

¶

Interviewer: → When·you·[crosstalk],·go·ahead,·I'm·sorry.¶

Sample Transcription #2

Interviewee: → I·think·---·if·I·could·wave·my·magic·wand,·what·I'd·say·is·there·needs·to·be·webinars,·courses,·whatever,·that·say·"The·COI·Frameworks,·the·Guide·to·Practical·Application."¶

¶

Interviewer: → That's·good.·Keep·going.·[Crosstalk]·What·does·that·look·like?·When·you·start·thinking·about·as·you·put·---·because·we·either·read·the·back·of·the·book·or·we·look·at·the·table·of·contents·a·lot·of·times,·right?¶

Document Key

Appendix H

Delphi Panel Information and Instructions

To: Delphi Panel Participants
From: Stephan Junion
Re: Information and instructions for the upcoming Delphi study

I want to thank each of you for you for participating in this study! Your input and feedback will be critical in shaping the final version of the CoI Instructional Strategies and Activities Guide, Framework, and Job Aid.

Purpose of this Communication:
The purpose of this communication is to provide details on how the Delphi Panel will be conducted over the period of approximately eight weeks. For information on the details of the study's timeline, please refer to Table 1: Detailed Delphi Panel Activities & Timeline.

Details on Round 1 of the Study:
On April 16, you will receive an email that includes an electronic package of information. This package will include the following:

1. Cover letter providing instructions on how to provide feedback for Round 1
2. The CoI Instructional Strategies and Activities Guide
3. The CoI Instructional Strategies and Activities Framework (included as part of the guide)
4. The CoI Instructional Strategies and Activities Job Aid

Assumptions:

- Feel free to turn in your feedback early if you complete it ahead of schedule.
- Feedback can be provided using Microsoft Word using the track changes / insert comment features **and/or** providing audio feedback.
- If you have **any** questions, please reach out to me immediately so that I can respond.
- I will respond to any questions you pose via email or voice mail within 24 hours of receiving the question.

Next Steps:
You will receive an email on April 16 to begin the first round of the Delphi panel. If you have any questions, please don't hesitate to email or call.

Stephan Junion
junion@nova.edu
319.431.5475 (Cell Phone)

Dates	Key Activities	Party Responsible	Comments
April 16 – April 29	**Delphi Panel Round 1:** Delphi Panel participants will receive (via email) the current Guide, Framework, and Job Aid along with a series of open-ended questions.	Delphi Panel Participants	Feel free to add additional comments to the guide –using the Track Changes / Comments Features in Microsoft Word ***or*** recording your feedback in an audio format. If you need to have the document provided in another format (i.e. PDF), please let me know. *Note for Audio Feedback:* If you provide feedback in an audio format, please consider recording it using a MP3 or a WMA format. Feel free to send me a test format if you wish.
April 30 – May 13	Feedback from Delphi Panel participants will be analyzed and incorporated.	Stephan	Delphi panel members may be asked follow-up questions based on their comments.
May 14 – May 27	**Delphi Panel Round 2:** Delphi Panel participants will receive (via email) the revised Guide, Framework, and Job Aid. In this round, participants will respond to a series of questions using a Likert scale. In addition, panel participants can include additional comments regarding the revised guide.	Delphi Panel Participants	Round 2 will include a series of statements for you to assess the revisions incorporated into the Guide, Framework, and Job Aid. Feel free to provide additional comments either in the documentation, on the assessment sheet, or provide your comments using an Audio file. If you decide to provide comments in the Guide, please use the Track Changes or Insert Comments Feature.

May 28 – June 3	Feedback from Delphi Panel participants will be analyzed and incorporated.	Stephan	Delphi panel members may be asked follow-up questions based on their comments.
June 4 – June 17	**Delphi Panel Round 3:** Delphi Panel participants will receive an updated version of the Guide, Framework, and Job Aid. During this round, you will be asked to respond to one question.	Delphi Panel Participants	I will use your feedback to revise the Guide, Framework and Job Aid after rounds one and two. The goal of the three-round Delphi technique is to gain consensus on the Guide, Framework, and Job Aid are useful tools for practitioners in the design and development of online learning that builds a community of inquiry.
June 18 - June 24	**Study Concludes:** Make final formatting and style changes to the Guide, Framework, and Job Aid.	Stephan	Final adjustments to the formatting and style changes will be completed.

Table 1: Detailed Delphi Panel Activities & Timeline

Appendix I

Delphi Panel Round 1 Instructions

To: Delphi Panel Participants

Subject: CoI Instructional Strategies Delphi Study: Round 1

From: Stephan Junion

Thank you for participating in the CoI Instructional Strategies Delphi study! I want to begin by acknowledging that I understand the amount of effort that you will invest in providing feedback on the guide and job aid is significant. Please note that the amount of time spent providing feedback will decrease throughout the Delphi process. It is with sincere gratitude that I thank you in advance for the time you invest in providing feedback.

In the first round of the study, you will be responding to a series of open-ended questions for both the CoI Instructional Strategies and Activities Guide and the CoI Instructional Strategies and Activities Job Aid. These questions can be found on pages three and four of this document.

Delphi Study Round 1 Timelines

I would ask that you please complete your review of both the guide and the job aid by ***April 29, 2012.*** Should you complete your review prior to April 29, feel free to email me your feedback.

General Instructions

All comments related to the guide and job aid are welcome. The guide and job aid have been developed using both a literature review of the CoI and a series of phenomenological interviews. The intent is for both of these documents to be used by instructional design practitioners in designing for the CoI. In addition, both the Guide and Job aid have stated goals. Your feedback should be directed at improving the documents in alignment with the stated goal for each document.

How to Provide Feedback

Per the communication sent on April 9, feedback can be provided through any of the following methods:

- Typed feedback to the questions for both the guide and the job aid contained on pages four and five of this document.
- Comments within the text of each document using either *Track Changes* or *Insert Comment* features of Microsoft Word as it pertains to each question. For example, if you would like to give feedback on how to amend or clarify Section 1 of the guide, feel free to do any or all of the following:

    - Add comments throughout the section using track changes or inserting comments.
    - Provide a summary of your feedback to the question at the end of the section.
- Audio feedback instead of and/or as a compliment to typed feedback. If you provide feedback in an audio format, please consider recording it using a MP3 or a WMA format. Feel free to send me a test format if you wish.
- If you have a preferred method of providing feedback not listed, please do not hesitate to email or call me to discuss.

Questions

Should you have any questions on the process or the attached documents, please don't hesitate to email or call me at any time. My contact information is listed below.

Regards,

Stephan Junion
junion@nova.edu
(319) 431-5475 (Cell Phone)

CoI Instructional Strategies and Activities Guide Review

The questions asked for the questions for the CoI Instructional Strategies and Activities Guide are open ended in order for you to provide the types of comments you feel would add value and result in revisions to the guide. Question one focuses on the overarching guide while questions two through eleven focus on each of the major sections in the guide. Question 12 will help me prioritize the feedback in revising the guide.

CoI Instructional Strategies and Activities Guide Questions

1. How would you amend or clarify the CoI Instructional Strategies and Activities Guide?
2. How would you amend or clarify Section 1: CoI Primer as outlined in the guide?
3. How would you amend or clarify Section 2: How Life Experiences Affect Designing for the CoI?
4. How would you amend or clarify Section 3: The ID Practitioner?
5. How would you amend or clarify Section 4: Advice to Instructional Designers Using the CoI?
6. How would you amend or clarify Section 5: The importance of Theory in Designing for the CoI?
7. How would you amend or clarify Section 6: Instructional Strategies and Activities?
8. How would you amend or clarify Section 7: How the CoI Informs Design?
9. How would you amend or clarify Section 8: Using the CoI as a design process?
10. How would you amend or clarify Section 9: Selecting appropriate instructional strategies and activities?
11. How would you amend or clarify Section 10: The need for additional research?
12. Following your review of the guide what area(s) do you recommend the most focus on revisions?

CoI Instructional Strategies and Activities Job Aid Review

CoI Instructional Strategies and Activities Job Aid Questions

6. How would you amend or clarify the CoI Instructional Strategies and Activities Job Aid?
7. How would you amend or clarify Section 1: The Community of Inquiry Overview?
8. How would you amend or clarify Section 2: The CoI Design System?
9. How would you amend or clarify Section 3: CoI Survey and Instructional Strategies and Activities?
10. **Following your review of the CoI Instructional Strategies and Activities Job Aid, what area(s) do you recommend the most focus on revisions?**

Appendix J

Document of Resolution for Delphi Panel Round One

CoI Instructional Strategies and Activities Guide

What area(s) do you recommend the most focus on revisions?

Page #	Delphi Panel Member's Comment/Question/Feedback	Response
N/A (DP1)	I did not find any one section to be in more need of revision than others. However, I would suggest focusing on sections five and seven during the revision process.	Thank you for the feedback. I revised section #5 (The importance of theory in designing for the CoI) and changed the intent / approach of the section based on this and other feedback.
N/A (DP2)	For all the questions above I inserted comments throughout the guide to ask for clarification, or provide my perspective. The one thing I think overall is the structure of your sections which I have not addressed. First I don't always feel like it is for ID-ers (is it for ID-ers or is it background for anyone and then the 3.0 guide is for ID-ers). Second there are some sections that seem to go together better in terms of flow, I've made notes where I think this is the case. Finally, some sections really don't add anything about CoI so I'm not sure if they should be included. Also, a lot of the Garrison lit is pretty dated—albeit it still holds. I would add some of his newer work to add some validity to your guide.	Thank you for the feedback. The purpose of the guide is twofold. First, for those IDs who don't have a background in the CoI Hopefully you will see the impact of your comments in terms of flow throughout the document. I have also worked to include more updated CoI literature. The intent behind using much of the original research is that it is so foundational and when describing the CoI and the presences, it is the source to which most current articles cite. I do think I was too heavy on this original literature and have added more recent work.
N/A (DP3)	I recommend combining the documents [Guide and Job Aid] and arranging a thorough edit that addresses how the information is ordered in addition to correcting the grammar and punctuation.	Thank you for providing this recommendation. At this time I will be keeping both documents separate. I took this feedback very seriously and as I thought about it, I pulsed the panel and my Chair for additional feedback. Based on my reflection and feedback, it was decided to keep both.

General Feedback

Page #	Delphi Panel Member's Comment/Question/Feedback	Response
N/A (DP1)	The numerous acronyms, especially in Section 1 (CoI, CMC, PMI, and so on) are a bit confusing. I would suggest adding a section in the introduction that can be used as a quick reference for the reader to flip back to if confused about what a specific acronym stands for.	Great suggestion. I have included this in Section 1.
N/A (DP3)	Hello, Stephan. Here are my comments for round 1. Although I'm recommending a couple of major changes (see the instructions document), I want to recognize the enormous work you've already invested in this project. I've added some comments to the other two documents as well. Please let me know if you have questions about my suggestions.	Thank you for the feedback!
N/A (DP3)	It isn't clear to me why the Guide and the Job Aid are separate. They seem to be directed to the same audience, they have much text in common, and conceptually they are related. To make this useful for the audience, I would combine them, call the document the Community of Inquiry Instructional Guide, and lead with the CoI Primer (current section 1). I would follow that with the CoI design system (current section 2 plus page 6 from the job aid document), and the importance of theory in designing for the CoI (current section 5). I would include a description of transactional distance theory and activity theory, two theories appropriate for distance education that instructional designers should be familiar with. Now bring in advice to instructional designers using the CoI (current section 4) and the CoI survey and instructional strategies	This is fantastic feedback! Although I am keeping the guide and the job aid as separate documents, I am taking some of your recommendations on the flow of the document. It is very much appreciated. Also, you will see an impact to some of the sections that you mention (i.e. importance of theory in designing) was modified significantly not only due to your comments but comments from the rest of the Delphi panel. Your point on a tight edit is well taken. Due to the delay of one panel members input, I will have to continue to due a tight edit prior to releasing the third set of revisions of the document.

	and activities (current section III from the job aids). Any work that helped inform the guide could go in an appendix, such as the ID practitioner (current section 3). The documents need a tight edit by someone who isn't as close to the process as you are. Let me acknowledge that a tremendous amount of work has gone into the development of these documents—all the more reason for a third party to trim and rethink how best to present this information to the audience. My biggest concern, however, is designing a course around the CoI survey. To me, it's similar to teaching to the test. The survey is instructor-focused rather than learner-focused. Designing around the templates from the original research papers (plus Garrison & Arbaugh 2007), however, places less focus on the instructor, which is important to teachers who are trying to have students take more responsibility for their learning, and helps avoid the awkward table 1 on page 11 of the job aid. The templates allow for more flexibility. In the job aid, you could use the same sample instructional strategies and activities plus integrate table 1 if you ditched the survey and adopted the templates.	On you biggest concern, I have changed the language. You make a valid point and the intent of using the CoI survey was **not** as an end-all/be-all in terms of designing for the CoI. I appreciated our ability to discuss this issue via phone and as a result, I have done the following: - Modified the language regarding the CoI as one of many tools and provided additional context as to how the expert designers use it as a component of their design process. - Added a section on the templates (CoI Indicators) in the Guide and Job Aid which are described in the original Garrison article that can also be used from a design perspective.

Section 1 Feedback: CoI Primer

Page #	Delphi Panel Member's Comment/Question/Feedback	Response
N/A (DP1)	This section is very thorough. I particularly liked the use of the quotes at the beginning of each section to focus the reader's attention.	N/A

N/A (DP1)	The images are well developed and essential to this section.	N/A
8 (DP2)	Spell out Community of Inquiry in the Section 1 Header.	Modified to include full spelling of CoI
8 (DP2)	Paragraph 2 – The Community of Inquiry (CoI) framework describes how learning takes place in an online learning environment… *"The process of learning – "this is a process model"*	Agreed. Made the change to reflect that the CoI describes how the process of learning takes place in an online learning environment…
8 (DP2)	Paragraph 3 – Instructional strategies are used to determine how to present instruction… *"Not sure this belongs in the CoI primer"*	Agreed. This paragraph was removed as it was out of place i.e. impacted the flow of this section.
8 (DP3)	For those unfamiliar with the CoI framework, a brief explanation of the CoI, including a review of the literature supporting the CoI *"I think it should be noted that CoI was developed so that asynchronous discussions could lead to a worthwhile educational experience. Over time, researchers and practitioners have expanded CoI to cover course design and even program design. Inquiry is central to the CoI framework, and discussion is at the heart of inquiry. That is why I believe different frameworks should be used for courses that are not inquiry-based. CoI is not appropriate for every type of content or every philosophy. Courses that focus on individual knowledge acquisition could be designed around transactional distance theory, for example."*	Modified section to include reference to the 2000 Garrison, et al. article and the fact that the CoI – at the time – was a response to the increase in the use of computer-mediated communication environments.

The Community of Inquiry (CoI) Instructional Strategies and Activities Job Aid

What area(s) do you recommend the most focus on revisions?

Page #	Delphi Panel Member's Comment/Question/Feedback	Response
N/A (DP1)	I found no significant issues in the job aide. This is very well designed and informative.	Thank you!

How would you amend or clarify the CoI Instructional Strategies and Activities Job Aid?

Page #	Delphi Panel Member's Comment/Question/Feedback	Response
N/A (DP1)	No issues noted	Thank you!

Section 1 Feedback: The Community of Inquiry Overview

Page #	Delphi Panel Member's Comment/Question/Feedback	Response
N/A (DP1)	No issues noted. Visuals are very helpful in this section.	Thank you!
3 (DP3)	Paragraph 3 - Garrison, Anderson and Archer (2010) reflect on findings over a decade ago that indicated students were not achieving integration and resolution of knowledge (phase three and four of the PIM respectively) and… *"This is the first mention of PIM in this document. I suggest deleting the parenthetical phrase at this point."*	Change made.

Section 2 Feedback: The CoI Design System

Page #	Delphi Panel Member's Comment/Question/Feedback	Response
5 (DP3)	Section Header – Section II: The CoI Design System *"Maybe I'm stuck in traditional system theory, but I see inputs, processes (in the presences), and an outcome in the educational experience. I don't see a feedback loop to the inputs."*	This is a very good point. I originally started out attempting to create a framework and I've renamed it so the CoI Design Framework.
5 (DP2)	Paragraph 2 - Through the interview process, it became apparent that a number of factors impacted the instructional designer's approach to designing for the CoI. After analyzing the interview data, four categories emerged: learning theory, instructional design theory, life/design experiences, and.. *"The figures are a bit too small to actually be of use, is there a way to enlarge them? Especially on next page"*	Thank you for the advice. I've made the figures larger to provide better viewing.
5 (DP1)	Paragraph 5 - Reword the following to eliminate measured or demonstrated or add "and" between the words-"as measured demonstrated by"	Revised.

Appendix K

Delphi Panel Round Two Consolidated Feedback

The CoI Instructional Strategies and Activities Guide Questions

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree	Comments & Feedback	Impact to Guide
The CoI Design Framework provides insight into how learning theory, instructional design theory, life/design experiences and instructional strategies and activities inform CoI.			DP1	DP2 DP3	DP2: The way the guide flows now this is much more apparent	N/A – Consensus was reached and there was no actionable feedback.
The CoI Design Framework is useful in understanding how instructional designers approach the task of designing for a community of inquiry.			DP1	DP2 DP3	DP2: The use of quotes and examples allows this to come through. More is always better with real world examples in my opinion	N/A – Consensus was reached and there was no actionable feedback.
The guide provides useful information to new and experienced IDs on the CoI and instructional strategies and activities that support the CoI.				DP1 DP2 DP3	DP3: And the reflection questions help IDs re-think their experience and assumptions in light of the new information in the guide.	N/A – Consensus was reached and there was no actionable feedback.
The guide provides useful information to instructional designers *new* to the CoI to provide them a solid background of information on the CoI to enable them to understand the CoI framework.				DP1 DP2 DP3	DP2: I think so, not being in that position I may be biased	N/A – Consensus was reached and there was no actionable feedback.
The sections flow in an appropriate manner.				DP1 DP2 DP3	DP2: Much better, I did add a few comments; everything is much more clear now having read it once and seeing the feedback	N/A – Consensus was reached and there was no actionable feedback.
Each section provides complete information.			DP2 DP3	DP1	DP2: I added a few comments where a little more info could be provided. Also, after reviewing both docs I think the table of strategies would be very useful in the guide—or really combining them at this point (which I	This question was poorly written. Based on the feedback of the Delphi experts, the researcher felt comfortable with the panel member assessment and comments.

					know you are not crazy about) DP3: I would say it's adequate. "Complete" would require much more depth that isn't really necessary at this point.	
The CoI Instructional Strategies and Activities Guide will enable novice IDs to identify or develop instructional strategies that can inform the CoI.			DP1	DP2 DP3	DP2: Again, I believe this to be true but I'm not novice anymore. I can run it by my class of novices in the fall.	N/A – Consensus was reached and there was no actionable feedback.
The CoI Instructional Strategies and Activities Guide will enable experienced IDs to identify or develop instructional strategies that can inform the CoI.			DP1 DP2	DP3	DP2: "inform the CoI" – this I'm not sure about. It can help designers be informed and you allow for them to give you feedback but may need more to inform CoI. Does this make sense?	This question was poorly written. Reviewing the comments by one panel member under the CoI overview section demonstrated that the researcher was on track regarding the audience "… this guide will provide you insights into how expert instructional designers think about designing for the CoI framework."

The CoI Instructional Strategies and Activities Job Aid Questions

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree	Panel Comments & Feedback	Impact to Guide
The job aid is useful in supporting the practitioner in identifying instructional strategies and activities that can be used to inform the CoI.				DP1 DP2 DP3		N/A – Consensus was reached and there was no actionable feedback.
The job aid is structured in a way that is easy to understand and find information.				DP1 DP2 DP3	DP2: Much more clear now	N/A – Consensus was reached and there was no actionable feedback.
The job aid will enable IDs to identify instructional strategies that can inform the CoI.				DP1 DP2 DP3		N/A – Consensus was reached and there was no actionable feedback.
The CoI Design Framework provides insight into how learning theory, instructional design theory, life/design experiences and instructional strategies and activities inform CoI.			DP1 DP2	DP3	DP2: Yes but the more detailed info from the guide would be helpful on this point too	The decision to keep the guide and job aid separate was based on a number of conversations. The intent of the guide is to provide more background and context for the audience. The job aid is meant to jump-start those who have more background and expertise in the CoI. While some content is overlapped, there are distinct elements in each document. Together they make up a "complete" picture for instructional designers.
The CoI Design Framework is useful in understanding how instructional designers approach the task of designing for a community of inquiry.			DP1	DP2 DP3	DP3: However, I want to reiterate my concern about designing instructional strategies and activities around the CoI survey. To review, here is my rationale:	This was a critical piece of feedback by DP3. I took this feedback very seriously and modified the guide – presenting it to the Delphi Panel for their feedback. A majority of

					The survey is instructor-focused rather than learner-focused. Designing around the templates from the original research papers (plus Garrison & Arbaugh 2007), however, places less focus on the instructor, which is important to teachers who are trying to have students take more responsibility for their learning, and helps avoid the awkward table 1 on page 11 of the job aid. The templates allow for more flexibility. In the job aid, you could use the same sample instructional strategies and activities plus integrate table 1 if you ditched the survey and adopted the templates.	panel members felt the changes – based on DP3's feedback and those changes have now been implemented.

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