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The Effective Affect: A Scoping Review of Social Presence

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Abstract : This paper reports the findings of a scoping review of the construct social presence. The methodology follows the design for scoping reviews as advocated by Arksey and O'Malley (2005). A scoping study is desirable because by synthesizing the research literature the opportunity to identify practical guidelines for the development of social presence is facilitated. A two-stage screening process resulted in 105 studies identified for inclusion with data extracted using a standardized form. A descriptive numerical analysis and qualitative content analysis for those studies included was undertaken. Results from the manuscripts screened for inclusion and synthesized from the data extracted in the scoping review, provide strategies for the structuring of social presence; the potential benefits of effective affective communication in an online environ; and an overview of the evolution of the construct social presence. Future research that aggregates research findings on social presence is desirable so as to ascertain how the development, design, and instruction of online learning moderates the effects of social presence on student outcomes. As well, future comparative research that considers course enrollment, length of course, course level and discipline is also recommended so as to determine what social presence practices are situation specific and what social presence practices can be generalized to all online learning environments.

Keywords: evidence synthesis, higher education, literature review, online learning, scoping review, social presence.

Résumé : Cet article fait état des résultats d'une étude de la portée de la présence sociale construite. La méthodologie suit la démarche des études de la portée (scoping reviews) préconisée par Arksey et O'Malley (2005). Une étude de la portée est souhaitable dans la mesure où la synthèse de la littérature favorise l'identification de directives pratiques permettant le développement de la présence sociale. Un processus de sélection en deux étapes a permis d'identifier 105 études à prendre en compte, dont les données ont été relevées dans une grille standardisée. Une analyse descriptive numérique ainsi qu'une analyse qualitative de contenu de ces études ont été entreprises. Les résultats émergeant des analyses des manuscrits sélectionnés et des données relevées dans l'étude de la portée

fournissent des stratégies de structuration de la présence sociale, mettent en relief les bénéfices potentiels d'une communication affective efficace dans un environnement en ligne et une vue d'ensemble de l'évolution de la présence sociale construite. A l'avenir, une recherche agrégeant les résultats de recherche sur la présence sociale serait souhaitable pour s'assurer de la manière dont le développement, la conception et l'administration de l'apprentissage en ligne influencent les effets de la présence sociale sur les résultats des étudiants. De même, une recherche comparative prenant en compte l'engagement dans le cours, la durée du cours, le niveau et la discipline du cours serait également à recommander pour déterminer quelles pratiques de présence sociale sont propres à des situations particulières et quelles pratiques de présence sociale sont davantage généralisables à tous les environnements en ligne.

Mots clés : synthèse de preuves, enseignement supérieur, revue de littérature, apprentissage en ligne, étude de la portée, présence sociale.

Introduction

How people interact socially in an online learning environment is described as social presence. As social interaction in education has been shown to be a key element to learning (Dewey, 1963; Hiltz, 1994; Hurst, Wallace & Nixon, 2013; Liaw & Huang, 2000), it is important to understand the relationship between social presence and online learning. Social presence is the way individuals develop inter-personal relationships, communicate, and project themselves online. Social presence is one of the more important concepts used to determine the level of interaction and effectiveness of online learning (Borup, West, & Graham, 2012; Kim, Kwon, & Chow, 2011; Richardson & Swan, 2003). However, part of the problem is that the definition of what constitutes social presence was conceived over forty years ago when communication on the computer through the Internet was relatively basic (Gunawardena & Zittle, 1997; Rourke, Anderson, Garrison, & Archer, 1999; Tu, 2002: Tu & McIsaac, 2002).

Consequently, the understanding of what comprises social presence has become a more complex multi-faceted phenomenon, in part because the construct has been characterized by multidisciplinary research in the fields of higher education, social psychology, educational psychology, information technology, and computer science. As a result, the definition of social presence lacks clarity, making it difficult to establish what is or is not working, socially and interpersonally, in online higher education. There have been a few attempts to synthesize the research literature on social presence, with the majority of studies having been in the form of literature reviews, book chapters, or books (e.g., Aragon, 2003; Cui, Lockee, & Meng, 2012; Lowenthal, 2010; Whiteside, Dikkers, & Swan, 2017).

The only study that undertook a somewhat methodical approach was an integrative review conducted by Chen, Fang, and Lockee (2015). The review, however, was limited to studies up until 2013. Though it provided an admirable exemplar of the evolution of social presence research, as well as measurement and definitional issues, the number of studies pertaining to social presence has almost doubled since it was conducted.

Scoping reviews of primary research are gaining acceptance as evidenced-based practice and are becoming an increasingly popular way to map the relevant literature in depth, clarify conceptual limitations, and articulate working definitions (e.g., Arksey & O'Malley, 2005; Colquhoun et al., 2017; Levac, Colquhoun, & O'Brien, 2010; Peters et al., 2015). Other than the aforementioned integrative review, there has not been a scoping review on social presence conducted so as to facilitate knowledge translation. To address this gap, the focused purpose of the study is to conduct a scoping review of the construct social presence to determine how it has been conceptualized and implemented in higher education online learning environments. The overarching questions to be answered are: 1) How is the construct social presence defined? 2) What elements, either technological or social, augment the development of social presence? and 3) What outcomes are the result of social presence?

Methods

Scoping studies are considered more rapid reviews of the literature, ask broad questions, can have *post hoc* inclusion or exclusion criteria, do not assess for bias, and examine a wide range of evidence (Levac et al., 2010). The approach used for the scoping review followed the original design advocated by Arksey and O'Malley (2005) for the conducting of scoping reviews with enhancements by Levac, et al. (2010). Peters et al.'s (2015) guidelines for undertaking scoping reviews were also followed. There were six stages to the conducting of the scoping review, which included, identifying the research questions, identifying relevant studies, screening and selecting studies, charting the data, collating and summarizing, and reporting the results.

In order to conduct the scoping review the expertise of the research librarians was solicited. The research librarians facilitated the review by recommending research databases likely to yield studies and documents pertinent to the research questions, offering assistance in identifying search terms and developing search strategies tailored to the research questions, providing advice on how to conduct the searches, offering suggestions on how to keep detailed records of search results including strategies to facilitate documentation, and proposing recommendations on managing references and removing duplicates using citation mangers such as Endnote. Working in conjunction with research librarians, a series of search terms were then constructed representative of social presence to facilitate

the searching of the ERIC, PsychINFO, ProQuest, and JSTOR databases. In building the search terms, key concepts were combined using the Boolean operators "and" and "or" so that relevant articles from 1996 to 2016 were extracted and imported into Endnote.

A two-stage screening process was then employed. In the first stage, an initial title, abstract, and keyword screen for inclusion was conducted by two reviewers with discrepancies resolved either through consensus or, if needed, involvement of a third reviewer. Inclusion criteria were based on the relevance of the material to social presence (e.g., the social and interpersonal component). Studies in which social presence within online or e-learning environs was not the focus (e.g., social presence not stated in the title, abstract, or keywords) were excluded or designated as uncertain for inclusion. The second stage of the screening process involved material previously identified as uncertain. To ascertain if material identified as uncertain from the initial title, keyword, and abstract screen were suitable for inclusion required reading of the full text by the reviewers with consensus reached on relevance for final inclusion (e.g., focus of the study being social presence). The reference lists of those studies identified for inclusion were then searched for additional studies not included in the database search.

Of those studies identified for inclusion, a full-text read occurred and data was charted using a data extraction form. The form employed was modeled after Peters et al.'s (2015) recommendations for the conducting of scoping reviews. The data extraction form was then piloted among the reviewers. Minor modifications to the extraction form were made until there was an 80% agreement as to its completeness and ease of use. The data included in the extraction forms were then collated and summarized through a numerical analysis of the descriptive characteristics and a content analysis (Hsieh & Shannon, 2005) of the studies selected for inclusion. Two reviewers conducted the content analysis independently and along with the principal investigator synthesized and summarized the results of the analysis. A flowchart for the social presence scoping review detailing the search decision process and yield is provided in Figure 1.

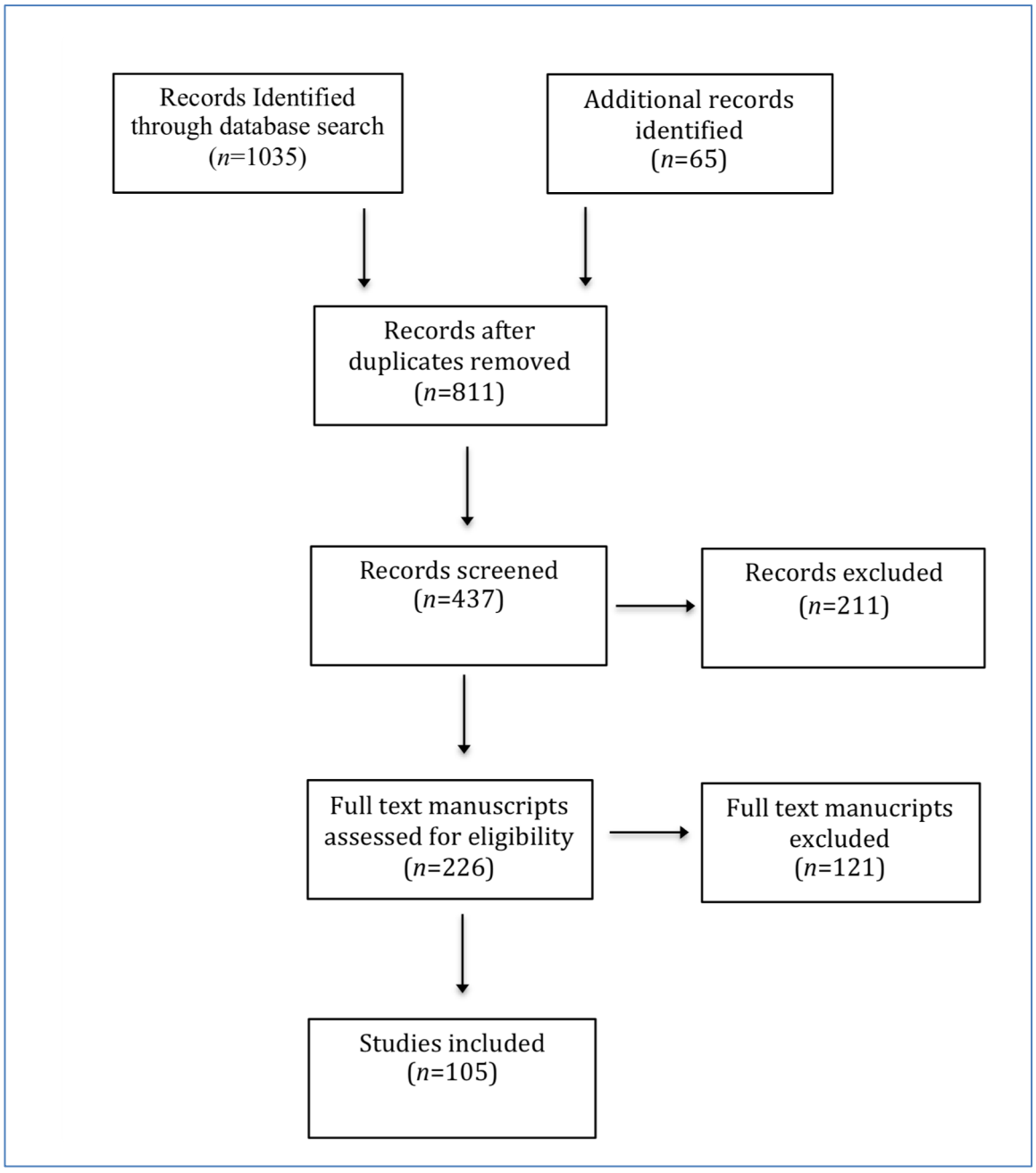

Figure 1. Flow Chart of Decision-Making Process for Social Presence Scoping Review.

Results

The descriptive characteristics of the social presence scoping review were obtained through a numerical analysis of the data extracted and charted. Frequency counts and percentages were used to describe the features of the studies. Year of publication, study location, type of online learning environment, study design, and sample size comprised the categories for the numerical analysis descriptive statistics. The numerical analysis of the studies selected (n = 105) indicate that although the majority (46%) of the research has occurred in the United States there is a growing body of

research into the construct occurring in Europe (18%), Asia (14%), Canada (12%), Australia/New Zealand (6%), and the Mideast (4%) (see Figure 2). When examining the frequency counts for year of publication, roughly half of the studies have occurred since 2012, indicative of a growing interest pertaining to social presence and online learning in general (see Figure 3).

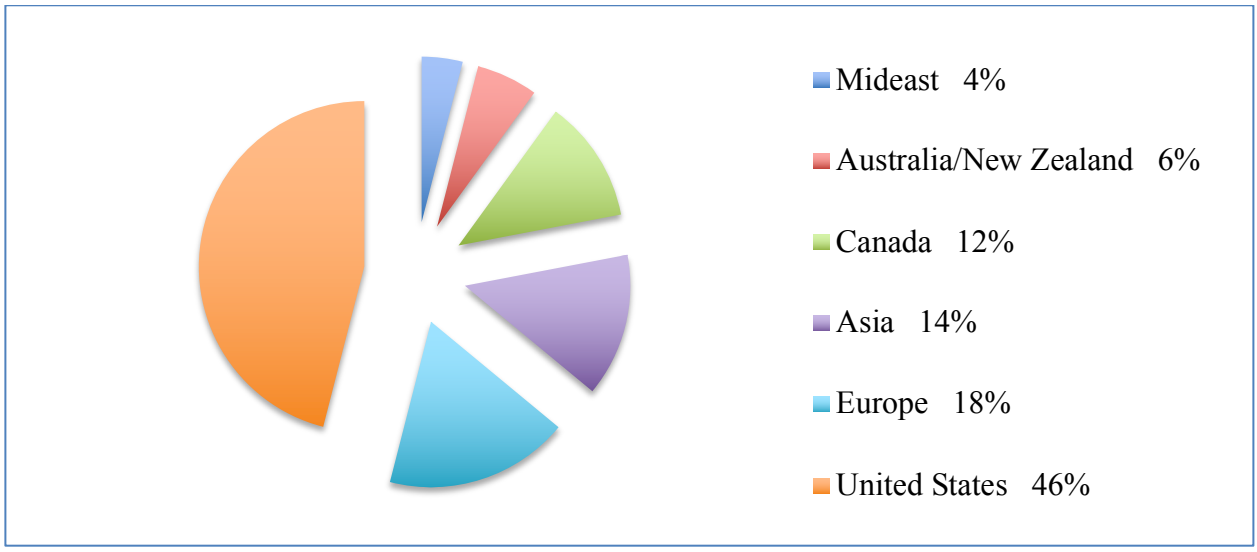

Figure 2. Social Presence Studies by Geographical Area (n = 105).

For purposes of the scoping review, the vast number of the studies selected related to asynchronous learning (73%), which is not unexpected as it has been the dominant format in which online learning has occurred. However, recent trends indicate that blended environs (10%), synchronous learning (9%), multi-media (3%), virtual 3D platforms (3%), and MOOCs (2%), are gaining traction in the research literature (see Figure 4). In terms of study design, the most frequent are survey methods (17%), followed by factor analysis (14%), and case studies, which includes both mixed methods (10.5%) and strictly qualitative (5%) designs. This is followed by correlational (9.6%), mixed methods not identified as case studies (8.5%), quasi-experimental (8.5%), and experimental (7.4%) designs. In terms of qualitative research methods, content analysis tends to be most popular (8%), followed by thematic analysis (3%), ethnography (2%), and grounded theory (2%). There are also a few structural equation modeling designs (2%) and item response theory studies (1%) undertaken (see Figure 5). As would be expected, due to the variety of designs that characterize the research literature, sample sizes tend to vary and are typically small in nature for the qualitative designs and more robust (e.g., 200-500) for research pertaining to instrument/scale development, and replication studies.

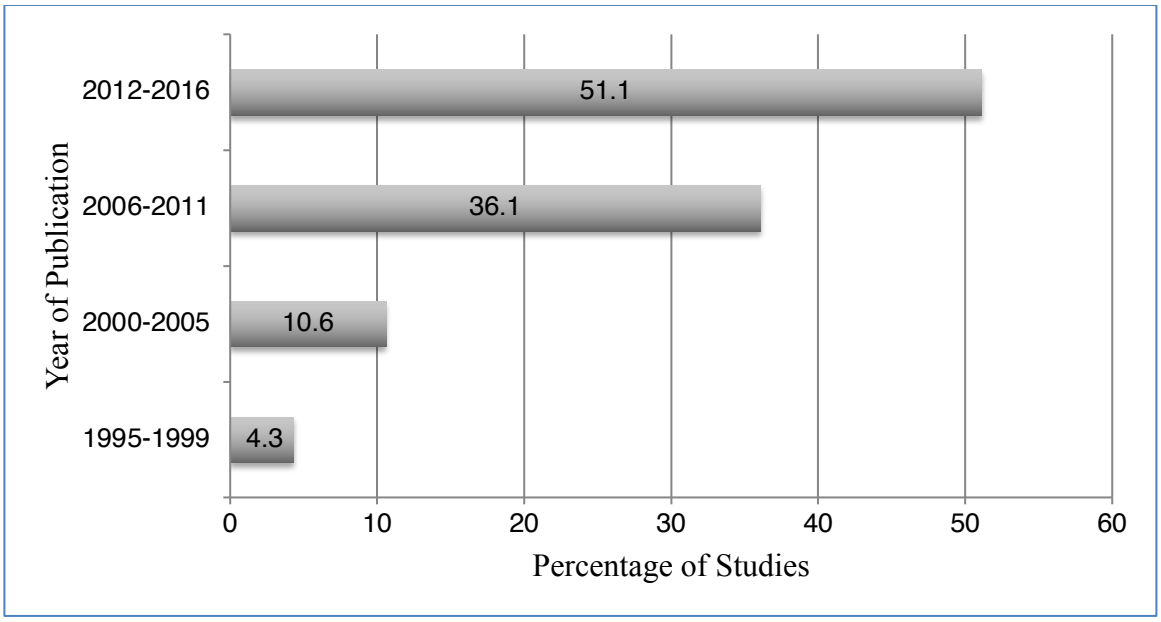

Figure 3. Social Presence Studies by Year of Publication (n = 105).

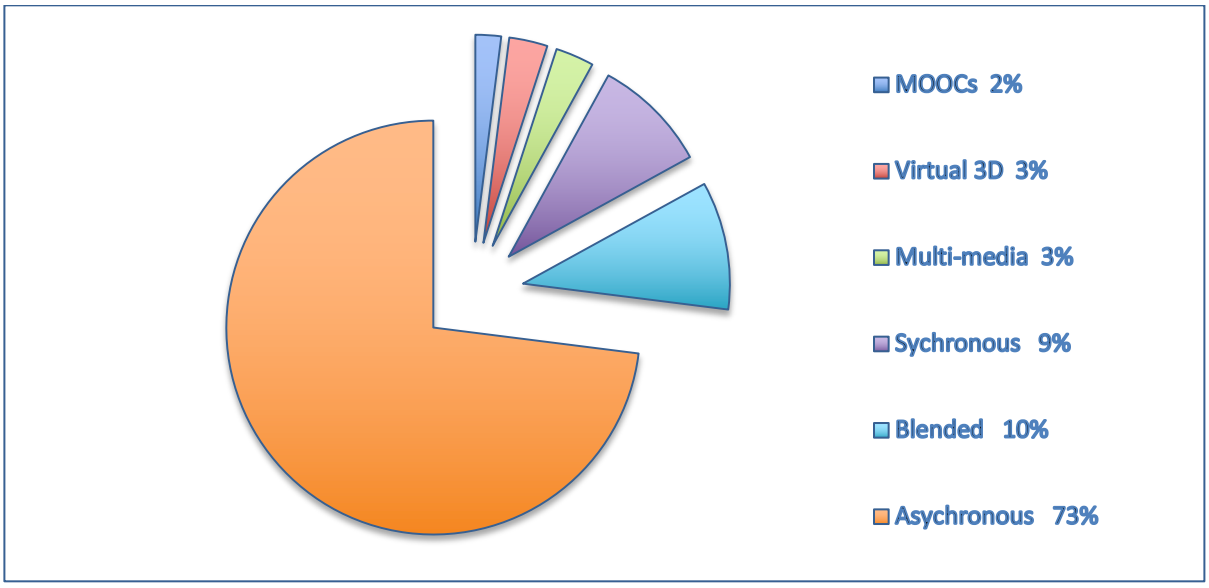

Figure 4. Social Presence Studies by Type of Online Learning Environment (n = 105).

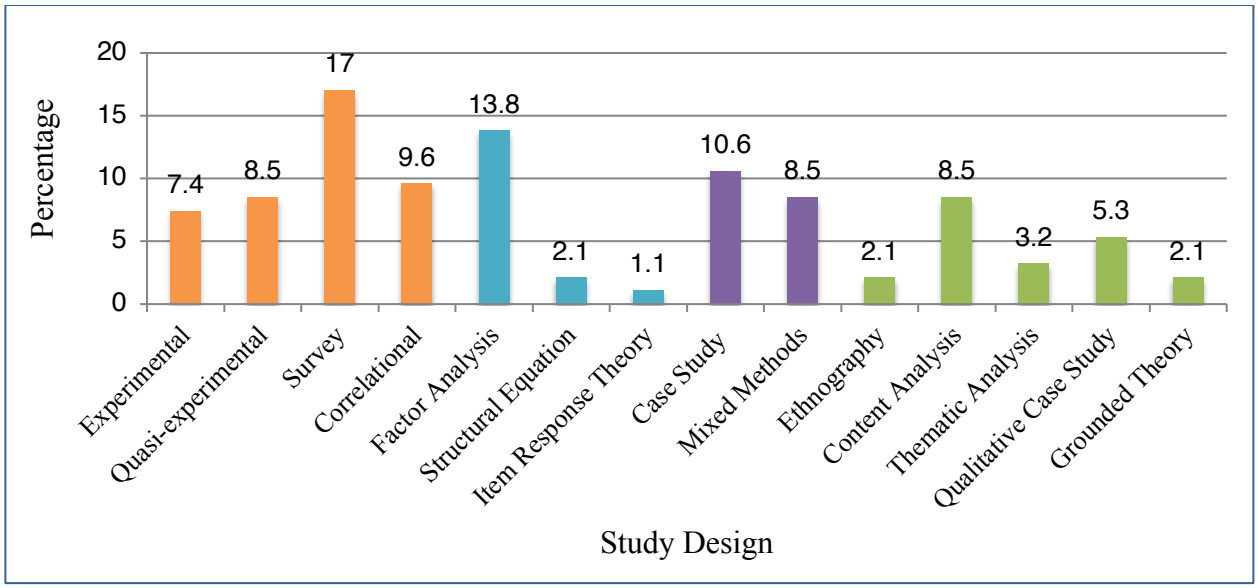

Figure 5. Social Presence Studies by Study Design (n = 105).

Social Presence Definitions

The data extracted from the scoping review as it pertains to definitions of social presence were mapped and presented chronologically (see Table 1). By way of background, at the outset social presence was embedded in the sociological concept of co-presence (Zhao, 2003) that was described as the sensory awareness and conditions that influence the way individuals interact with one another in a face-to-face environment (Goffman, 1959). The marriage of computer technology and sociology occurred when Hiltz and Turoff (1978; 1993) provided insight into how human social relations through computer conferencing systems could be developed and improved.

Presence research is thought of as comprising three dimensions that include telepresence, co-presence, and social presence (Biocca, Harms, & Burgoon, 2003; Kehrwald, 2010). Telepresence refers to 'being there' in a technology mediated space; co-presence is the sensory awareness of another; and social presence is the experience of being there with another in a mediated environment (Biocca et al., 2003; Kehrwald, 2010). In exploring the evolution of social presence, Biocca et al. (2003) described three classification schemes that include co-presence or mutual awareness (e.g., Goffman, 1959); psychological involvement (e.g., Short, Williams & Christie, 1976); and behavioral engagement as applied to virtual reality (e.g., Palmer, 1995). For purposes of the data extracted from the scoping review as it pertains to defining social presence, the first two classification schemes articulated by Biocca et al. (2003) are the most relevant.

In tracing the development of social presence, the theoretical influence of social psychologists surrounding immediacy (Wiener & Mehrabian, 1968) and intimacy (Argyle & Dean, 1965) as applied to face-to-face communication need to be considered. In face-to-face communication, immediacy refers to the psychological distance between two speakers, whereas intimacy is the closeness obtained, verbally and non-verbally, among individuals and maintained by immediacy behaviors (Rettie, 2003). Short, et al., (1976) then applied social presence to the social psychology of telecommunications describing it as the "degree of salience of another person in an interaction and the consequent salience of an interpersonal relationship" (p. 65) and that in a computer-mediated communication (CMC) environ, the social effects experienced are caused by the degree of social presence afforded users (Short, et al., 1976).

To help understand the relationship between these dimensions, Gunawardena (1995) in her study on social presence theory concluded that immediacy behaviors enhance and maintain social presence and in doing so, the degree to which an individual in an online learning environment is regarded as an actual person is enhanced. Accordingly, Gunawardena (1995) defined social presence as "the degree to which a person is perceived as a 'real person' in mediated communication" (p. 151). As thinking changed on how we understand interpersonal and social communication, a reconceptualization of social presence theory from a strictly technologically determined event to one that is co-determined by social and interpersonal interactions within an educational context occurred (Gunawardena & Zittle, 1997; Tu & McIsaac, 2002).

Rourke, et al. (1999) using qualitative content analysis, analyzed the transcripts derived from online courses to determine how social presence was represented. Rourke et al. (1999) found that affective indicators (e.g., values, beliefs, feelings, and emotions), cohesive indicators (e.g., group presence and commitment), and interactive indicators (e.g., attending in a socially meaningful way) were revealed in the analysis undertaken. Garrison et al. (2000), in investigating good pedagogical practices for online learning, went on to articulate that in the community of inquiry (CoI) model, social presence was viewed as "the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (e.g., their full personality), through the medium of communication being used" (p. 94). This definition was later extended by Garrison (2009) to: "the ability of participants to identify with the community, communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (p. 352). What is noteworthy and unique in these definitions was the inclusion of the community (group) within an educational context.

Table 1: Social Presence Definitions

Author(s) and Social Presence Definition
Short, Williams, & Christie (1976). The degree of salience of another person in an interaction and the consequent salience of an interpersonal relationship (p. 65).
Gunawardena & Zittle (1997). The degree to which a person is perceived as real in computer-mediated communication (p. 151).
Rourke, Anderson, Garrison, & Archer (1999). Three elements of social presence: affective indicators (e.g., values, beliefs, feelings, and emotions); cohesive indicators (i.e., group presence and commitment); and interactive indicators (i.e., attending in a socially meaningful way)
Tu and McIsaac (2002). Degree of feeling, perception, and reaction of being connected via CMC to another intellectual entity" (p. 140).
Tu & Yen, (2006); Yen & Tu, (2008). Social Presence as measured by computer mediated communication questionnaire revels five-factor solution comprised of the social form of communication, privacy, intimacy, social context, and interactivity.
Biocca, Harms, & Burgoon, (2003). The minimum level of social presence occurs when users feel that a form, behavior, or sensory experience indicates the presence of another intelligence (co-presence). The amount of social presence is the degree to which a user feels access to the intelligence (p. 461).
Garrison, Anderson, & Archer (2000). The ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (i.e., their full personality), through the medium of communication being used (p. 94)
Garrison (2009). The ability of participants to identify with the community, communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities (p. 352).
Kehrwald (2010). Social presence operates from the establishment of a telepresence and increases or decreases with the number of interactions, frequency of interactions, cues contained in the messages and the interpretation of those cues by others. The result is a dynamic sense of others and relationships with them in mediated environments (p. 45).
Kreijns, Kirschner, Jochems, & Van Buuren (2011). The degree of illusion that others appear to be a 'real' physical person in either an immediate (i.e. real time/synchronous) or a delayed (i.e., time-deferred/asynchronous) communication episode (p. 366).
Sung & Mayer (2012). The subjective feeling of being connected and together with others during computer mediated communication. The others can be real people (such as the instructor and fellow students) or pedagogical agents generated by a computer (p. 1739).
Whiteside (2015). Social presence model for online blended environments that includes: affective association, community cohesion, instructor involvement, interaction, intensity; knowledge and experience (p. 11).

Integrating social learning theory, Tu and McIsaac (2002) described social presence as the "degree of feeling, perception, and reaction of being connected via CMC to another intellectual entity" (p. 140). Tu and McIsaac (2002) initially presented the construct in three dimensions stating there was a social

context, a communication context, and an interactivity context. Using factor analysis, Tu (2005) developed and validated the computer-mediated communication questionnaire (CMCQ). In the initial validation study a five-factor solution comprised of the social form of communication, privacy, intimacy, social context, and interactivity factors were found to exist (Tu & Yen; 2006; Yen & Tu, 2008).

Sung and Meyer (2012) then redefined social presence as "the subjective feeling of being connected and together with others during computer-mediated communication" (p. 1740). In their study measuring the construct, a five-factor solution that included social respect, social sharing, open mind, social identity, and intimacy were identified. However, a major limitation of the study was that it focused only on university students in Korea, with future research needed to examine if similar findings would be replicated in samples with different ages, genders, grades, and cultural backgrounds.

Meanwhile, others furthered research on social presence that appears more in line with the notion of telepresence and co-presence. For example, according to Biocca et al. (2003):

> The minimum level of social presence occurs when users feel that a form, behavior, or sensory experience indicates the presence of another intelligence (co-presence). The amount of social presence is the degree to which a user feels access to the intelligence (p. 461).

While Kehrwald (2010) contends:

> Social presence operates from the establishment of a telepresence and increases or decreases with the number of interactions, frequency of interactions, cues contained in the messages and the interpretation of those cues by others. The result is a dynamic sense of others and relationships with them in mediated environments (p. 45).

However, Kreijns, Kirschner, Jochems, and Van Buuren (2011), who claim to be inspired by the research on telepresence conducted by Lombard and Ditton (1997), believe social presence is "the degree of illusion that others appear to be a 'real' physical person in either an immediate (e.g., real time/synchronous) or a delayed (e.g., time-deferred/asynchronous) communication episode" (p. 366). What is of interest in Kehrwald's (2010), Biocca et al.'s (2003), and Kreijins et al.'s (2011) definitions is that social presence appears to exist along a continuum, in that you can have more or less social presence. As well, there was no mention of community, group, or social cohesion.

Kreijns, Van Acker, Vermeulen, and Van Buuren (2014) argued that in the CoI model developed by Garrison et al. (2000), only aspects of social space were measured (e.g., salience of the interpersonal social relationships; Short et al. 1976) and not the psychological realness of individuals

communicating within an online environment (e.g., salience of the individual in the interaction; Short et al. 1976). This has led Kreijns et al. (2014) to extend the CoI model of social presence into a two-dimensional construct.

More recently, Whiteside (2015), drawing on CoI research, has gone on to develop the social presence model for online and blended learning environments. Whiteside's social presence model is composed of five interrelated components that include affective association, community cohesion, instructor involvement, interaction, intensity, knowledge, and experience. The theoretical underpinnings of the model are found in Vygotsky's (1978) social development theory, which offers a different perspective to the understanding of social presence than the social psychological perspective as advanced by Short et al. (1976). According to Whiteside (2017), the relationship between knowledge acquisition, literacy, and social interaction, as posited in the Vygotsky's zone of proximal development, is key to understanding social presence. Although the social presence model draws from the community of inquiry, social presence in Whiteside's (2015; 2017) model is viewed as a critical literacy to online and blended learning and in this sense is best considered as an overarching comprehensive concept.

Social and Technological Elements

Results from the content analysis, as it pertains to the social and technological elements that augment the development of social presence, were organized into three overarching conceptual maps representative of the practices and guidelines for establishing, introducing, and sustaining the development of social presence within higher education online learning environs. Although the conceptual maps are reported as distinct, they are interwoven and interrelated across categories.

The Establishing Social Presence conceptual map attends to instructional design and pre-course activities. The conceptual map is viewed as foundational to establishing social presence as it permeates all aspects of the online learning experience. This conceptual map also represents how instructors and course designers choose ways for students to enter and navigate a course, access evaluation materials, and what strategies instructors can employ to build social presence in online environs. The conceptual map is composed of three categories, their descriptors, and the studies extracted (Table 2).

The first category, Design a Balance of Course Activities, refers to the need to design well-constructed course activities that form the basis of establishing social presence. A balance of individual assignments, authentic problem-based group tasks, and asynchronous/synchronous discussion groups were recommended in the design of course activities (Aragon, 2003; So & Brush, 2008). Integrating media through the use of reference links and other tools such as audio and video clips and graphic images can enhance and promote social presence (Kim et al., 2011). A course structure

with cooperative and collaborative learning experiences would also enhance social interaction and the affective component of the learning environment (Östlund, 2008). Costley (2016) reported that a more critical discourse could be obtained if learners have greater control in the learning environment and that social presence will decrease when learning environments are predominately instructor controlled. To enable the development of social presence through course design activities, Cui et al., (2012) suggest a front-end analysis conducted by instructional designers using design models for online course structure, which have the potential to facilitate social presence strategically.

Table 2: Establishing Social Presence Conceptual Map

Category	Descriptors	Authors
Design a Balance of Course Activities	Problem based and collaborative tasks; discussion forums, front-end analysis by instructional designers.	Aragon, 2003; Costley, 2016; Cui, Lockee & Meng, 2012; Kim, Kwon, & Chow 2011; Östlund, 2008; So & Brush, 2008.
Provide Course Information/Expectations	Detail communication approaches; provide course preview; ungraded pre-lesson and feedback.	Plante & Asslin, 2014; Mayne & Wu, 2011; Strong, Irby, Wynn, & McClure, 2012.
Creating a Safe Online Environment	Use positive relational responses; ensure privacy, trust, and respect to create intimacy and interactivity.	Gunawardena, 1995, Plante & Asselin, 2014; Mayne & Wu, 2011; Tu, 2001; Tu & McIsaac, 2002.

The second category, Provide Course Information/Expectations, refers to ensuring learning outcomes are related to the course activities and methods of assessment. Strong, Irby, Wynn, and McClure (2012) suggest that instructors need be attentive to the communication and interaction patterns within the course and provide explicit detailed approaches for student-to-student and student-to-instructor interaction. They go on to recommend that integrating social media sites (SMS) like Facebook or Twitter have the potential for increasing social presence among students and creating more intimate and immediate interaction patterns. Another method suggested for clarifying expectations and course structure is to provide a course preview, which, in turn, can assist in the development of expectancies for course interaction patterns (Plante & Asselin, 2014). Similarly, Mayne and Wu (2011) proposed

that an ungraded pre-lesson with feedback can provide a low stakes way to engage in course material, establish course expectations, and interaction patterns.

The third category, Creating a Safe Online Environment Through Communication, refers to those instructor competencies that need be developed to ensure a caring online learning environment is provided and communicated. Given the ethnic plurality of society, it is important that instructors ensure that the cultural and heritage backgrounds of the students are valued (Gunawardena, 1995). To accomplish this, explanation of language patterns, colloquial phrases, and understanding relational communication patterns is advocated (Gunawardena, 1995; Tu, 2001). Notwithstanding cultural differences, the creation of a safe online environ by instructors that facilitates interaction patterns can be achieved through positive, encouraging, and respectful responses (Plante & Asselin, 2014) ensuring a learning environ built on trust, intimacy, and professional affective communication (Mayne & Wu, 2011; Tu & McIsaac, 2002).

The Introducing Social Presence conceptual map describes the various methods in which researchers have identified introductory activities or strategies that lay the foundation for social presence in online learning environments. These initial facilitation type of behaviors are essential to building trust, rapport, and initiating community-building activities to establish instructor-to-learner and learner-to-learner connections. As well, the Introducing Social Presence conceptual map describes those instructor communication patterns that need be introduced, learned, and modeled by the instructor so as to establish effective affective communication patterns, thereby enabling course participants to form a community of learners and establish norms for interaction and participation. The Introducing Social presence conceptual map is comprised of the three categories, their descriptors, and the studies extracted (Table 3).

The Welcoming Activities category is pervasive in the literature and is used as a means by which to pique students' interest and begin to build a sense of community in the online environment. The most prevalent activities are welcoming messages from the instructor (audio or visual), coupled with course orientation (self-guided or tutorials), and introduction of the syllabus (Aragon, 2003; Dow, 2008; Mayne & Wu, 2011). Biographies are also another way for instructors or students (Kear, Chetwynd, & Jefferies, 2014) to introduce themselves and, often, include a photo, a summary of interests, personal information, and inclusion of a video (Plante & Asselin, 2014). As well, Lowenthal and Dunlap (2010) suggest use of both a syllabus scavenger hunt and digital storytelling to kindle learners' interest. The syllabus scavenger hunt serves as an orientation to the course while providing a scaffold to course expectations and materials. Digital story telling (Lowenthal & Dunlap, 2010), is incorporated to serve as a unique way to build intimacy by introducing oneself to the course

participants through story format while at the same time setting up expectations for future assignments.

Table 3: Introducing Social Presence Conceptual Map

Category	Descriptors	Authors Extracted
Welcoming Activities	Welcome messages (audio or video); course orientation (self-guided or tutorials); biographies; syllabus scavenger hunt; digital storytelling.	Aragon, 2003; Dow, 2008; Kear, Chetwynd, & Jefferies, 2014; Mayne & Wu, 2011; Lowenthal & Dunlap, 2010; Plante & Asselin, 2014.
Initiating Instructor Communication Patterns	Model and scaffold social presence behaviors; prompt responses; analyze student posts; through a social presence coding template.	Aragon, 2003; Chapman, Storeberg-Walker, & Stone, 2008; Cui, Lockee, & Meng, 2013; Gunawardena, 1995; Hughes, Ventura & Dando 2007; Lowenthal & Dunlap, 2010; Mayne & Wu, 2001; Rourke, Anderson, Garrison, & Archer, 1999.
Student Engagement in Content	Limit course enrollment (30:1); discussion groups < 8; form groups based on interests, integrate social networking sites.	Akcaoglu & Lee, 2016; Huang, 2016; Mathieson & Leafman, 2014; Mayne & Wu, 2011; Östlund, 2008; Rovai, 2001; So & Brush, 2008; Tu, 2002.

The Initiating Instructor Communication Patterns category describes, in general terms, the need for instructors to facilitate the development of social presence. To accomplish this, instructors must make certain that they model and scaffold social presence behaviors (Mayne & Wu, 2011) by ensuring their involvement within all aspects of the course (e.g., discussions, debriefing, and closing activities) so as to develop group cohesion and connectedness (Cui et al., 2013; Östlund, 2008). Prompt responses that are timely create immediacy types of behaviors that are developed through email and the discussion responses of the instructor (Aragon, 2003, Gunawardena, 1995).

Moreover, instructors need to be cognizant of student participation and interaction patterns so that support can be provided when needed. For example, instructors can analyze student posts to see who needs prompting and/or support (Chapman, Storeberg-Walker, & Stone, 2008; Lowentahl & Dunlap, 2010) by participating in discussions and other types of synchronous or asynchronous conversations.

Hughes, Ventura, and Dando (2007) further this notion by suggesting that instructors be trained in building group cohesion, socialization, and interaction through a social presence coding template. The template, a revised version of Rourke et al.'s (1999) affective, interactive, and cohesive indicators, could be applied to discussion forums and used as means to build student involvement by addressing gaps in student behaviors within the forums (Hughes et al., 2007).

The Student Engagement in Content category is closely related to the Initiating Instructor Communication Patterns category, as some of the student engagement activities are based on instructor involvement in the establishment of group cohesiveness and interaction. Much of the research from the scoping review highlighted the benefits of small group discussion as a way to facilitate student engagement (Mayne & Wu, 2011; Östlund, 2008; Tu, 2002). When groups were composed of eight or less participants it was found that student perception of social presence was higher (Östlund, 2008). One important benefit of having smaller asynchronous discussion groups is the volume of messages become easier to navigate. By having a reduced number of posts, participants can potentially respond in greater depth to the message threads, increase the quality of the discussion occurring, and build interpersonal relationships (Akcaoglu & Lee, 2016). As well, large classes have the potential to decrease social presence by affording students the opportunity not be involved. To address this concern, Rovai (2001) suggests limiting course enrollment to a 30:1 ratio.

Other recommendations found in the literature as applied to student engagement and the development of asynchronous interactions among students, was the use of asynchronous seating charts. The seating charts formed are based on student submitted information pertaining to interests and experience, which could then be used for the creation of asynchronous discussion groups that are either heterogeneously or homogeneously constructed (Mayne & Wu, 2011; So & Brush, 2008). Finally, Mathieson and Leafman (2014) recommended that offering social networking outside of the learning management system with social media tools might address the ambivalence of students towards their social interactions with instructors and peers, thereby increasing social presence. Huang (2016) goes on to propose that using team messaging services have the potential to facilitate students' collaboration and find greater enjoyment in the collaborative process. However, Mathieson and Leafman (2014) argue the identification of an appropriate social networking tool that is sustainable and used appropriately requires further investigation.

The final conceptual map derived from the content analysis as applied to the social and technological elements of social presence, is Sustaining Social Presence. The Sustaining Social Presence conceptual map refers to specific behaviors instructors and students can embody to enhance communication, increase intimacy, and engage in immediacy and interactivity behaviors, thereby, ensuring the

maintenance of social presence as the course progresses. The Sustaining Social Presence conceptual map is comprised of three categories, their descriptors, and the studies extracted (Table 4).

The Discussions Forums category provides a variety of discursive strategies a facilitator can use to create engaging discussions and enhance social presence. In order to aid non-verbal skills and increase engagement, Yamanda and Akahori (2007) recommended that video communication in either a synchronous or asynchronous format be incorporated so as to increase social presence. In a similar fashion, Clark, Strudler, and Grove (2015) assert both instruction and social presence can be enhanced when discussions occur with video posts and synchronous videoconferencing, as compared to being strictly text based. Further, Ke (2010) proposed online discussions best serve students when questions are open ended, there are opportunities for multi-modal interactions, and that both small group and class discussions occur.

Table 4: Sustaining Social Presence Conceptual Map

Category	Descriptors	Authors Extracted
Discussions Forums	Structured forums, assign roles; model moderation, synchronous-asynchronous video communication.	Clark, Strudler, & Grove, 2015; Ke, 2010; Yamanda & Akahori, 2007.
Assignment Feedback	Keep feedback, simple, prompt, positive & related to course work.	Aragon, 2003; Borup, West, Thomas, & Graham, 2014; Grieve, Padgett, & Moffitt, 2016; Tu & McIssac, 2002; Rovai, 2007.
Synchronous Meeting	Phone calls, small group chat/video, or coffee shop style conversations.	Aragon, 2003; Borup, West, & Graham, 2012; Mayne & Wu, 2001; Tucker, 2012.

In the Assignment Feedback category, the guiding principle advocated was to keep feedback, simple, prompt, and positive (Rovai, 2007). It was argued, that instructor immediacy has an impact on student learning and how feedback is communicated to students in a timely fashion. Some basic guidelines suggested were to keep the feedback related to the assignments and academic progress (Aragon, 2003). Another guideline suggested was to consider what type of feedback is appropriate for the group and what should be directed in private to the individual (Tu & McIsaac, 2002).

According to Borup, West, Thomas, and Graham (2014), visual cues in video communication feedback had substantial impact on the establishment of the instructor's social presence. This is because video communication feedback allowed for emotional expressions not otherwise possible in written form that, in turn, helped students perceive the instructor as a real person (Borup et al., 2014). As well, Grieve, Padgett, and Moffitt, (2016) recommended that a generic video summary of feedback could be embedded within a specific learning activity/unit, and that electronic office hours using tools outside of the learning management system (e.g., Skype or FaceTime) could be incorporated to enable student acceptance of feedback.

As revealed in the Synchronous Meeting category, synchronous discussion options can increase social presence and potentially reduce isolation for participants while providing feedback to learners (Aragon, 2003; Mayne & Wu, 2001). These meetings may take the form of phone calls, small group chat/video, or coffee shop-style conversations, which may or may not be off limit to the instructor (Tucker, 2012). As learners often choose distance courses because of the flexibility they offer, it is important not to rely on synchronous tools for the bulk of the course. Hosting scheduled monthly, optional meetings, or holding meetings by request are suggested ways to engage learners. As well, synchronous video chats can be developed to convey personality and emotion. Borup et al. (2012) go on to note the importance of video feedback as a means to alleviate misunderstandings and create a more personal conversational format.

Outcomes of Social Presence

Results from the content analysis, as it pertains to outcomes of social presence, were organized into one overarching conceptual map representative of the outcomes of social presence in online learning environs. The conceptual map was then subdivided into four categories, which included Group and Community Cohesion; Satisfaction; Participant Interaction; and Knowledge Gain. The categories embedded within the Outcomes of Social Presence conceptual map are specific to research outcomes from the literature on social presence. The Outcomes of Social Presence conceptual map is comprised of four categories, their descriptors, and the studies extracted (Table 5).

In the Group and Community Cohesion category, Borup et al. (2012) reported the effects of video communication as having a substantial impact on social presence, which positively impacted group cohesion. Similarly, Clark et al. (2015) in their research on collaborative learning and asynchronous video enhanced discussion (VED) found that VED aided in the formation of group identity and the cohesion necessary for collaborative learning activities. Rogers and Lea (2005), using path analysis, confirmed that social presence positively influenced, the group cohesion of team players within a group, which, in turn, enhanced the output of the group as measured by the group mark. Within

virtual learning environs, Colominia and Remesal (2015) asserted that social presence has a mediating effect on group cohesion.

Table 5: Outcomes of Social Presence Conceptual Map

Category	Descriptors	Authors Extracted
Group and Community Cohesion	Enhances group cohesion and community in asynchronous formats, video enhanced discussion, and virtual learning networks.	Borup, West, & Graham, 2012; Clark, Strudler, & Grove, 2015; Colominia & Remesal (2015); Rogers & Lea (2005).
Satisfaction	Social presence as predictor of satisfaction in synchronous, asynchronous and blended environs.	Giesbers, Reinties, Tempelaar, & Gijselaers, 2014; Gunawardena & Zittle, 1997; Hostetter & Busch, 2006; Richardson & Swan, 2003; Scarborough, 2015; Sorden & Munene, 2013; Zhan & Mei, 2013.
Participation	Social presence enhances participant interaction and group interaction.	Mayne & Wu (2011); Tu & McIsaac, 2002; Wei, Chen, & Kinshuk (2012).
Knowledge Gain	Social presence: affects learning outcome; academic performance; mediates cognitive absorption; and predicts cognitive presence in synchronous/asynchronous, virtual, and blended environs.	Cho, Kim, & Paik, 2015; Garrison, Cleveland-Innes, & Fung 2010; Gutierrez-Santiuste, Rodríguez-Sabiote & Gallego-Arrufat, 2015; Hostetter & Busch 2013; Joksimović, Gašević, Kovanović, Riecke, & Hatala, 2015; Ke, 2010; Leong 2011; Shea & Bidjerano 2009; Wanstreet & Stein, 2011.

The Satisfaction category reports research on student and participant satisfaction. Early research in online learning, then referred to as CMC, found that social presence was a strong predictor of learner satisfaction (Gunawardena & Zittle, 1997). Richardson and Swan (2003) in their study of social presence and students' perceived learning asserted their findings corresponded with Gunawardena and Zittle's (1997). Richardson and Swan (2003) found students' social presence was related to their perceived learning and that social presence was a strong predictor of student satisfaction within a

text-based online environment. Since these earlier studies there have been a number of other studies that confirm the positive relationship between social presence and learner satisfaction (Hostetter & Busch, 2006; Zhan & Mei, 2013). When blended learning environments are examined, a moderate, positive relationship has also been reported to exist between social presence and learner satisfaction (Sorden & Munene, 2013).

According to Huang (2016), not only did social presence directly influence satisfaction but it also influenced the use of team messaging in a positive manner. But more technology does not always equate with increased social presence and perceived satisfaction. For example, when video conferencing is incorporated into the online environment, Giesbers, Reinties, Tempelaar, and Gijselaers (2014) reported that students participating in text-based discussion forums were equally as satisfied as their video conferencing counterparts, a finding which was supported by Scarborough (2015) who found no significant difference in social presence between asynchronous and synchronous learning environments. Perhaps this research demonstrates that there is a ceiling effect with social presence. For example, Kim, et al., (2011) contend that social presence should be viewed as a binary variable, in that once a social presence threshold is reached its effects are muted and students do not necessarily find that they learned more or found the experience more useful.

The third category in the conceptual map, Participant Interaction, although closely related to the Satisfaction category, refers mainly to those studies extracted and charted that considered participant/student interaction as an outcome of social presence. In a pilot study conducted by Mayne and Wu (2011) it was found that the purposeful application of social presence by instructors not only influenced student social presence but also group interaction. Similarly, Wei, Chen, and Kinshuk (2012) found that social cues and user interface influenced social presence, which can have a significant impact on interaction in the learning environment. However, not all research involving social presence demonstrates interactivity as a positive outcome. For example, although Tu and McIsaac (2002) recognized social presence does have a positive influence on online interaction, they also contended increased participation frequency does not always result in higher rates of social presence reported. Similarly, Kim, Song, and Lou (2016) argue that although interactivity and social presence are related they are separate constructs and that they might be simply correlated to one another such that it is difficult to predict if interactivity is an outcome of social presence or that social presence is an outcome of interactivity.

The fourth category, Knowledge Gain, refers to those studies extracted in which social presence was found to positively affect learning outcomes such as academic performance, cognitive absorption, and cognitive presence. In a recent study using regression analysis conducted by Hostetter and Busch (2013), it was reported that students who demonstrated higher rates of social presence in their online

discussion forums had statistically higher scores on their standardized achievement tests. When the relationship between course design, social presence, and academic achievement were investigated, it was found that a course design, which facilitated meaningful interactions resulted in the development of social presence, which then could positively impact academic performance (Joksimović, Gašević, Kovanović, Riecke, & Hatala, 2015). Joksimović et al. (2015) also suggested that another implication of this finding was that social presence could be used to assist in the detection of those at-risk of failure. Meanwhile, Leong (2011) found that social presence directly influenced cognitive absorption, which in turn impacted satisfaction. Although social presence has been found to contribute to knowledge gain and the overall learning process in virtual worlds (Cho, Yim, & Paik, 2015), mixed results were reported for the use of Voki avatars in a composition class, in which it was found that avatars did not significantly impact the development of social presence or sense of community (Cunnigham, 2015).

Research into the CoI model is significant for the understanding of the Knowledge Gain category as it applies to the interrelatedness between teaching, social, and cognitive presence. In studying student perceptions, it was found that strong evidence exists for the interconnectedness of the three presences (Garrison et al., 2010). Using structural equation modeling, Garrison et al. (2010) were able to tease out the relationship between the three presences such that the importance of teaching presence influencing cognitive and social presence was demonstrated. It was also found that social presence predicted student perceptions of cognitive presence, thus confirming the mediating nature of social presence on cognitive and teaching presence. Using a mixed methods design, Ke (2010) noted the importance of teaching presence as a catalyst in the creation of a CoI and in ensuring the development of social and cognitive presence. Although not a direct outcome measure of learning or knowledge gain as related to social presence, both aforementioned studies were of importance in describing the interrelatedness of the presences and the importance of teaching presence, and how social presence alone does not sustain or nurture critical inquiry (Bangert, 2008).

Results similar to Garrison et al.'s (2010) were found by Gutierrez-Santiuste, Rodríguez-Sabiote, and Gallego-Arrufat (2015), who confirmed that social presence predicts cognitive presence to a greater extent than teaching presence. Shea and Bidjerano (2009) go on to contend, that in the multivariate cluster analysis they undertook using student ratings, that in both online and blended environments, cognitive presence was rated higher when both teaching and social presence also had high ratings, and that to eliminate either would downgrade the learning experienced. It is worth noting that other research into the CoI model has found a positive correlational relationship between social and cognitive presence and that social presence is important to the continued development of cognitive presence (Wanstreet & Stein, 2011).

Discussion

In conducting the scoping review the evolution of social presence mirrors the complexity representative of the multifaceted technological advances that have come to characterize the medium, and in turn, influence social presence. As the technological sophistication of online learning advanced, the efficacy and effectiveness of asynchronous video communication, synchronous video communication, and social media (e.g., Twitter, Facebook, cloud computing), as a means to augment the development of social presence, became more evident. It was revealed that although a variety of technologies exist for use in a higher education online learning environment, their successful implementation is dependent on the degree to which those involved (e.g., instructors and students) embrace innovation and novelty.

In asynchronous courses in which video communication that *is not synchronous* is used as a form of feedback, it was found to assist in the development of an emotional connection, impacting instructor and to a lesser degree student, social presence (Borup et al., 2012). Although positive benefits to the use of asynchronous video are reported (e.g., digital storytelling, screencasts, and announcements) the effectiveness of the practice is dependent on how asynchronous video is used to replace text (Lowenthal, 2015). To further tease out some of the benefits of video enhanced discussion, Clark et al. (2015) conducted a study in asynchronous courses in which text-based discussion forums were compared to both *asynchronous and synchronous video* discussion forums. Not surprisingly, the social cues afforded the video enriched discussions (both synchronous and asynchronous) enhanced social presence and the development of social cohesion and group identity in comparison to the strictly text-based discussion forum (Clark et al., 2015).

However, when Olson and McCraken (2014) explored the potential benefits of incorporating *synchronous learning instruction* to a preexisting asynchronous course, no positive benefits were found to exist. This finding led the authors to conclude that in part, the potential benefits of synchronous learning could be explained by the students' lack of preference for synchronous learning because it affected accessibility, the discussions were often off topic, and was not viewed as being a meaningful use of course time (Olson & McCraken, 2014). Similarly, Giesbers et al. (2014) found that the affordances offered through *synchronous web video conferencing* tools did not augment social presence and thereby lead to better student performance (as measured by grades) or more satisfied learners. As to why, possible explanations are offered by the degree to which synchronous video conferencing inhibits accessibility (e.g., anytime and anywhere) and subsequently, students' overall acceptance and success in using new technologies (Giesbers et al., 2014). Thus, it would appear from both studies (Giesebers et al., 2014; Olson & McCraken, 2014) that the amount of synchronous video conferencing

incorporated in asynchronous courses, can adversely affect social presence, and that a threshold effect for synchronous video conferencing as it effects social presence in asynchronous courses might exist.

Mixed results are also reported for *social networking* as means to increase social presence in online courses (Leafman, Mathieson & Ewing, 2013; Mathieson & Leafmann 2014). With Lim and Richarson (2016) reporting that the intensity of student use of social networking sites (e.g., Facebook, LinkedIn, and Twitter) did not significantly impact social presence in an asynchronous online environment.

It was also found that students and instructors could be coached to leverage social presence (Gunawardena, 1995) through the use of low-tech affective elements. Some of the identified elements reported in the literature include photos with biographical information or disclosing some initial personal information by way of sharing stories (Aragon, 2003; Borup et al. 2012; Kear et al. 2014; Plante & Asselin, 2014; Rourke et al., 1999). Other behaviors include a personal e-mail, an invitation to preview course materials, and perhaps even help topics or useful links (Gunawardena, 1995; Mayne & Wu, 2011).

Lowenthal (2010) describes these behaviors as human qualities that are established through personal sharing and assist in creating initial connections between the instructor and students. But are these initial behaviors used by the instructor part of the construct social presence? Although instructor immediacy behaviors might increase social presence, Kim, et al. (2016) contend they are causal factors for the development of social presence and that instructor immediacy behaviors are a distinct construct and not a dimensional aspect of social presence, which they view as a psychological state. This implies that further research into immediacy behaviors need be undertaken so that the causal relationship between social presence and instructor immediacy can be better understood.

As would be expected, not all research into the relationship between social and cognitive presence as conducted within the CoI framework has led to similar conclusions regarding the influence of social presence on cognitive presence or teaching presence. For example, Annand (2011) asserts that the effects of social presence on cognitive presence are overstated, in part because much of the research has occurred within a social constructive paradigm involving discussion forums, and that greater emphasis on sustained two-way communications that are empirically validated need occur. Whereas Cleveland-Innes and Campbell (2012) argue that; "emotions expressed in the online experience as explained by the CoI model (Garrison et al., 2000), indicate that emotional presence exists in social, cognitive, and teaching presence" (p. 285). What this implies, according to authors, is that a more deliberative and conscious understanding of the role emotions play in online learning needs be undertaken. Suffice it to say for purposes of the present scoping study on the effects of social presence, more research into the construct needs be undertaken within a revised CoI framework that

considers the effects of learner and emotional presence along with teaching, cognitive, and social presence (Annand, 2011; Cleveland-Innes & Campbell, 2012; Shea & Bidjerano, 2010).

Moreover, findings related to the outcomes and effects of social presence are limited by their dependence on student perceptions and surveys as subjective measures of social presence (Biocca, et al., 2003; Chen et al., 2015). What is advocated for then, is empirically grounded research that considers the inclusion of more objective measures of social presence.

Table 6: Key Findings

Growing body of research involving blended learning, synchronous learning environments, and more recently MOOCs, and virtual 3D environments.
Study designs reflect both quantitative and increasingly qualitative methods, involving rating scales, surveys, content analysis, and interviews.
Social presence has evolved from a two-dimensional psychological state (e.g., immediacy and intimacy) to one that is both multidimensional and subjective in nature.
Not one consistent definition for the construct and it has not been operationalized uniformly, which muddles comparative analysis across learning environments (e.g., asynchronous, synchronous, blended, MOOC, virtual environments, etc.)
Confounding definitions of social presence, is the understanding of social presence: 1. as a psychological/phenomenal state of individual users; 2. an interactive relational pattern of performable behaviors; 3. a property of the medium; or 4. an overarching critical literacy as suggested by Whiteside (2017).
Students and instructors can be taught to leverage social presence through the use of low-tech affective elements described by Lowenthal as human qualities include, for example: photos with biographical information; digital stories, welcome messages (audio/video), screencasts, email, etc.
Although positive benefits to the use of asynchronous video are reported (e.g., digital storytelling, screencasts, & announcements) the effectiveness of the practice is dependent on how asynchronous video is used to replace text.
Mixed results are reported for social networking as means to increase social presence. Intensity of student use of social networking sites (e.g., Facebook, LinkedIn, and Twitter) did not significantly impact social presence (Lim and Richardson, 2016).
Findings related to the outcomes and effects of social presence are limited by their dependence on student perceptions and surveys as subjective measures of social presence (Biocca, et al., 2003; Chen et al., 2015).
Empirically grounded research that considers the inclusion of more objective measures of social presence is advocated.

Finally, part of the difficulty in aggregating research as it pertains to social presence is that it has evolved from a two-dimensional psychological state (e.g., immediacy and intimacy) to one that is both multidimensional and subjective in nature. Subsequently, there is not one consistent definition for the construct and it has not been operationalized uniformly, which muddles comparative analysis. Further confounding definitions of social presence, is the understanding of whether it is a psychological/phenomenal state of individual users; an interactive relational pattern of performable behaviors; a property of the medium; or an overarching critical literacy as suggested by Whiteside (2017). Within this context, the question arises as to whether or not the operationalization of social presence is consistent across learning environments, (e.g., asynchronous, synchronous, blended, MOOC, virtual environments, etc.). See Table 6 above for a summary of the key elements as derived from the scoping review of social presence as discussed throughout.

Conclusion

As a scoping review, the study set out to identify and describe how is social presence defined in the research literature, what is known about the types of social and technological elements ascribed to the development of social presence in an online learning environment, and what are the outcomes of social presence. To accomplish this the academic literature was examined and it was found that social presence research is gaining traction internationally with the frequency of publications increasing on a year-to-year basis. Although the vast majority of research into the construct involves asynchronous learning, there is a growing body of research involving blended learning and synchronous learning environments and more recently MOOCs, and virtual 3D environments. Moreover, it was found that study designs reflect both quantitative and qualitative methods involving rating scales, surveys, content analysis, and interviews. Nevertheless, it is important to acknowledge that this study is limited by the data extracted and the manuscripts screened for inclusion, as it is specific to the parameters of the scoping review and therefore may not be exhaustive in nature.

Although positive outcomes have been reported for social presence, a comparative analysis is somewhat complicated by the various definitions proposed and the numerous technological advances that have come to characterize the medium and impact social presence. Therefore, a more rigorous approach to study design, whether it be qualitative or quantitative, is advocated so that a more verifiable and factual understanding of social presence can be attained.

Social presence research would also benefit from a comparative analysis of empirically validated instrumentation to determine which measures are usable and which are limited in scope so that a more robust theory of social presence as a multidimensional construct can guide the development and the design of quality learning environments. Moreover, aggregation of research findings on social

presence is desirable so as to ascertain how the development, design, and instruction of online learning moderates the effects of social presence on student outcomes. In conclusion, future comparative research that considers course enrollment, length of course, course level (undergraduate or graduate) and discipline (e.g., social sciences, natural sciences, or health sciences) is also recommended so as to determine what social presence practices are situation specific and what social presence practices can be generalized to all online learning environments.

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