

Reconceptualizing the community of inquiry model: Exploratory and confirmatory analysis

Peter Shea^{a*}, Suzanne Hayes^b, Sedef Uzuner Smith^c Mary Gozza-Cohen^d, Jason Vickers^e, Temi Bidjerano^f

^a Corresponding author. University at Albany — SUNY, United States
School of Education, Department of Education, Theory, and Practice
1400 Washington Ave., School of Education - ED 114A, Albany, NY 12222
E-mail address: pshea@albany.edu Phone: (518) 442-4009

^b Empire State College — SUNY, United States
Academic Technologies
Three Union Avenue
Saratoga Springs, NY 12866
suzanne.hayes@esc.edu

^c Lamar University, United States
Counseling and Special Populations
College of Education & Human Development
P.O Box 10034
Beaumont, TX 77710
sedef.smith@lamar.edu

^d Widener University, United States
School of Education, Innovation, and Continuing Studies
Hyatt Hall 317
Chester, PA 19013
mccohen@widener.edu

^e University at Albany – SUNY, United States
School of Education, Department of Education, Theory, and Practice
1400 Washington Ave., School of Education
Albany, NY 12222
jvickers@albany.edu

^f Furman University, United States
Department of Education
Furman University
3300 Poinsett Hwy,
Greenville, SC 29613
temi.bidjerano@furman.edu

Abstract

Constructs that require significant additional conceptualization within the community of inquiry model for online learning include the self- and co-regulatory processes students bring to online learning. This paper extends previous efforts to advance the CoI model by addressing this gap empirically. Quantitative content analysis and social network analysis were used with online discussion transcripts to identify qualities of the discourse in student led activities. The analysis focused on the three original presences of the model (social, teaching, and cognitive presences) and learning presence, a recent addition to the model. First, frequencies of all four presences were calculated to quantify patterns in online discussions. Next, correlations were computed to investigate which presences correspond with the modes of critical thinking described in cognitive presence. Finally, students' positions of influence and prestige were analyzed in relation to their expressions of the four forms of presence. Findings raise questions the model's current scope and point toward its reconceptualization.

Keywords: Community of inquiry; online learning; learning presence; content analysis; social network analysis

1. Introduction

Many college students enroll in online courses without a good understanding of how this type of learning is different from that found in traditional classroom settings. Many are unprepared for student-centered learning; others struggle with using their time efficiently; some are slow to grasp how to participate effectively in collaborative learning activities; and many lack understanding of why they are expected to develop a certain level of autonomy. What is it that separates students who are successful in adapting to this new form of learning from those who are not?

Recent research has identified self-regulation, the processes of goal setting, planning, self-monitoring, and reflecting (Pintrich, 2000; Zimmerman 2000, 2008, 2011), as a precondition for student success in online learning environments. For example, a survey study by Sun and Rueda (2012) conducted with graduate students enrolled in online classes found a strong correlation between higher levels of self-regulation and higher levels of engagement. The results of the study suggested that students who highly self-regulate their online learning activities engage in the learning process behaviorally, emotionally, and cognitively and thus perform well. Similarly, Cho and Shen (2013) showed self-regulation to be positively associated with undergraduate students' successful online learning experiences and found that students with strong self-regulation tended to persist with learning in challenging tasks and put more effort into achieving desired outcomes compared to students with poor self-regulation. Artino and Stephens (2009a) likewise reported much greater success for online students with adaptive and self-regulatory skills than their less-adaptive counterparts. Additionally, Shen, Lee and Tsai's (2007) study that compared the performance of students who did and did not receive instruction in self-regulation revealed that the group that was given self-regulation instruction performed better in their online learning than the corresponding group that did not receive such instruction.

The common thread running through the above-mentioned and related work (e.g., Artino & Stephens, 2009b; Bol & Garner, 2011) is that due to the relatively autonomous and student-centered nature of online learning, careful deployment of self-regulation is crucial for student success.. Reviewing

the most rigorous evidence available, As Means, Toyama, Murphy, Bakia, and Jones, (2009) concluded : “Overall, the available research evidence suggests that promoting self-reflection, self-regulation and self-monitoring leads to more positive online learning outcomes” (p. 45).

While the construct of self-regulation has increasingly been found essential to online learning, it has not been well integrated into the currently available theoretical frameworks that seek to explain successful online education. In the following, we lay out one of the most widely referenced theoretical models for effective conduct of online learning, the Community of Inquiry (CoI) model (Garrison, Anderson, & Archer, 2000), and draw attention to gaps with regard to self-regulation. In so doing, our goal is suggest the need to add a new dimension within the CoI model to account for learner agency, control and co-regulation of learning online.

1.1. The Community of Inquiry (CoI) Model

Garrison et al.’s CoI (2001) model provides a conceptual framework that highlights the importance of interaction for online learning. The underlying assumption of the model is that a worthwhile online educational experience takes place through interactions among members of a community of inquiry composed of instructors and students. The model assumes that in order for significant learning to occur in this community, there is need for three forms of presences. These presences are: social presence (SP), characterized by a supportive collegial online setting; teaching presence (TP), defined by instructional orchestration appropriate to the online environments; and cognitive presence (CP), which is the extent to which learners can construct knowledge through critical thinking and reflection. The model posits that these three forms of presence together create a meaningful, collaborative and constructivist discourse that is necessary for high-level learning (Garrison & Arbaugh, 2007; Garrison & Akyol, 2013; Swan, Day, Bogle, & Matthews, in press). In other words, the group cohesion and open communication created by SP and the structure, organization, and leadership associated with TP lay the foundation to create the environment where CP, which is considered to be the most important element associated with higher-order learning, can flourish (Layne & Ice, 2014).

We contend that these three constructs (SP, TP, and CP) do not fully explain the attitudes, abilities, and behaviors that active and engaged students bring to their individual and collaborative online activities. To account for these missing elements, we proposed a new construct to be included in the CoI model called learning presence (LP) (see Shea & Bidjerano, 2010; Shea, Vickers, & Hayes, 2010; Shea, Hayes, Uzuner Smith, Vickers, Bidjerano, Gozza-Cohen, Jian, Pickett, Wilde, & Tseng, 2013).

Grounded in the works of Bandura (1986) and Zimmerman (2000, 2008), we define LP by the phases of forethought, monitoring, reflection, and strategy use associated with self regulated learning, but with emphasis on the goals and activities of online learners specifically. Under the forethought phase, we include planning, coordinating, and delegating or assigning online tasks to self and others in the early stages of an online course, learning module, or specific activity. In the performance phase, we include monitoring and strategy use. This phase is more elaborate and its monitoring component includes: checking with online classmates for understanding; identifying problems or issues; noting completion of tasks for self and others; evaluating quality; monitoring during performance of the online activity and taking corrective action if necessary. The monitoring component of performance also includes appraising personal and group interest or engagement in the online learning activity. The strategy use component of the performance phase includes: advocating effort or focus; seeking, offering or providing help to complete the online activity; articulating gaps in knowledge; reviewing and noting outcome expectations; and seeking or offering additional information to online classmates. Finally, the reflective component includes articulation of changes in thinking and causal attribution of results to individual or group performance in the online activity. It should be clear from this description that the entire learning presence construct is simultaneously self- and co-regulatory in nature as it is predicted on not only individual efforts, but also group dynamics within collaborative learning activities.

LP is thus distinct from the instructional design, facilitation of discourse, and direct instruction associated with TP as well as the explicitly affective and cohesive dimensions of SP in the CoI model. It also differs from each of the phases of CP (i.e. triggering event, exploration, integration, and resolution). Additional details and examples of LP are included in the Appendix.

In a recent article, Garrison and Akyol (2013) problematized our efforts to extend the CoI model with the addition of the LP construct. They argued that our “proposed “enhancement” is without commensurate theoretical considerations of the CoI framework (violates fundamental assumptions of the CoI framework)” (p. 85). Their argument is that the concept of learner self- and co-regulation is inherent in the original conceptualization of the CoI model. They therefore suggest that rather than creating a new construct like LP, one needs to look at the roles and responsibilities manifested within the original three presences, TP, SP, and CP, to seek evidence for students’ self- and co-regulation of learning. We disagree with Garrison and Akyol’s contention and argue that the discussion they use to explain why the LP construct is not a necessary addition to the CoI model is vague. We suggest that the authors’ contention that self- and co-regulation of learning is assumed within the CoI model obscures and much as it illuminates. It is thus one of our goals to more fully articulate the elements of online self- and co-regulation of learning, to argue that these critical roles are more closely aligned with learners than with instructors, and to make the case that these roles warrant significance worthy of their own dimension within the CoI model.

While agreeing that all participants in a community of inquiry can and do engage in both teaching and learning we maintain that it is crucial to delineate roles and responsibilities that are key to student success in credit-bearing online higher education environments. Learners participate in higher education for a variety of reasons, one of which is to accumulate credits toward valuable college credentials. To be successful in these pursuits learners must participate in online environments in ways that vary definitively from those of instructors. In part the authors write, “A key feature of the CoI framework is the integration of personal and shared cognitive and teaching presences. Regulation is central to both cognitive and teaching presences. All participants are both learners and teachers (Garrison & Akyol, 2013).”

We believe that regulation is central to the various forms of presence. However, as will be documented here, it may be more important for the regulation of social and cognitive presence for

students and may need to be conceived as a set of dispositions and behaviors supported by the instructor's teaching presence role. We thus feel that the regulatory functions under investigation are better understood through the varying roles played by instructors and students. The above referenced conceptualization unnecessarily conflates the roles of teachers and students. To claim that teachers are students and students are teachers may reflect an ideal, yet it does not match with reality in actual college settings. A reminder of two examples of the distinction between roles should suffice. First, instructors design courses in advance of student participation in them, students do not pre-design courses for instructors. Thus it is clear that the instructor plays a unique role related to the instructional design element of teaching presence dimension of the community of inquiry. Second, for good or for ill, instructors are typically obligated to assess the performance of students and to assign grades that either confer or deny college credit. This assessment function can be carried such that students grade each other's performance and the instructor reports these at the conclusion of the course, but the instructor still bears the responsibility for credit conferral. The roles and power dynamics of students and teachers, even within a community of inquiry, are thus clearly quite different. But more importantly and at a more granular level, the *goals* of students and teachers within a community of inquiry vary greatly. Students engage in discourse and produce artifacts of learning reflecting their distinct identities as learners who are obliged to demonstrate their growing competence within the community of inquiry. Instructors are not required to engage in the community in the same way. Within the community the instructor is assumed to be an expert participant, the students less so. Students frequently need to be drawn from the periphery (Lave & Wenger, 1991) of the community into the center. It's important that the instructor be able to occupy a central role without dominating the dialogue that is the vehicle for knowledge building. Instructor support for learner self-and co-regulation is crucial in achieving the movement from the periphery to the center. We argue that the elements of learning presence, outlined in greater detail below, represent a conceptually, and empirically valid means of explaining how students move from the periphery to the center of the community and thus demonstrate growth and learning commensurate with

participatory models of teaching and learning (Sfard, 1998). We do this through both quantitative content analysis and social network analysis.

Based on the evidence presented here, we continue to argue for the addition of LP within the CoI model to account for learner agency, control, and co-regulation of learning online. We also suggest further changes to the framework to enhance its scope.

2. Study Goals and Context

The motivation for this study comes from the research evidence that self- and co-regulatory behaviors students display in online learning environments are unaccounted for in the three original presences of the CoI model (Shea & Bidjerano, 2010; Shea, Vickers, & Hayes, 2010; Shea, Hayes, Uzuner Smith, Vickers, Bidjerano, Gozza-Cohen, Jian, Pickett, Wilde, & Tseng, 2013). Acknowledging LP as a new construct accounting for these missing elements requires investigations of the relationship of this construct to the original three presences within the framework. One goal of this study was, therefore, to investigate this relationship. During this investigation, the gap in knowledge we aimed to fill was to identify which one of the presences (LP, TP, and SP) are closely correlated with the specific modes of critical thinking and inquiry as described in CP within the CoI framework. We focused on CP because in their original articulation of the CoI framework, Garrison, Anderson, and Archer (2000) described it as the element that is “most basic to success in higher education.” They wrote, “Cognitive presence is a vital element in critical thinking, a process and outcome that is frequently presented as the ostensible goal of all higher education” (p. 89).

Another goal of this study was to investigate how the knowledge building mechanisms articulated in the CoI framework with the four presences (TP, CP, SP and LP) matter for the learning community’s social construction of knowledge. There is research evidence (e.g., Oshima, Oshima, & Matsuzawa, 2012; Russo & Coesten, 2005) suggesting that collaborative knowledge building can be predicted by students’ network positions. That is, the degree to which collective learning and co-construction of meaning develop can be directly inferred from students’ central or peripheral participation in the community’s

information exchange. Based on this consideration, we sought to understand if students who engage in TP, SP, LP and CP find themselves at the center of the network and thus reciprocally influence and benefit from the collaborative knowledge building process. We focused on students' network positions with the conjecture that they help us understand and distinguish the characteristics students display in a communication network with their expression of the various forms of presence (TP, SP, LP, CP).

An important point to note about this study is that it sought to realize the above-mentioned goals in online course interactions where students assumed instructional responsibility for leading and facilitating the discourse. As Xie, Yu, and Bradshaw (2014) stated, "assigning students as moderators to lead group activities is a widespread practice by teachers of online classes for purely pedagogical purposes or for reasons of large group management" (p. 12). We argue that this 'widespread' practice necessitates research that pays close attention to how students operate when they take the lead in online discussions. This study is therefore an important compliment to the existing literature (e.g., Correia & Baran, 2010; Rourke & Anderson, 2002; Xie, Yu, & Bradshaw, 2014) that seeks to understand the effects of assigning students the roles of 'leader' or 'facilitator' in online course discussions.

3. Research Questions

In accordance with the study goals, we asked the following research questions:

- (1) What were the frequencies of occurrence of TP, SP, LP, and CP in the student-led online discussions?
- (2) Which presences, TP, SP, or LP, were closely associated (correlated) with CP?
- (3) How did the students' expression of the various forms of presence (TP, SP, LP, CP) in their discourse impact their position within the network of interaction?

4. Data and Analysis

We used as our data set transcripts from five randomly selected student-led online discussions from a doctoral-level research methods course. As mentioned earlier, the students (N=18) in this course assumed instructional responsibility for leading and facilitating the online discussions. They were first divided into teams and each team chose reading materials for their classmates and developed guiding questions for a

discussion. The teams then took turns on a weekly basis and led and facilitated the class discussions by providing the discussion prompts and responding to peers' comments and questions on the materials they had assigned.

To investigate the CoI constructs' frequency of occurrence in students' online discourse (Research Question 1), we conducted a quantitative content analysis (QCA) of those five student-led discussions selected as data. This analysis entailed reading through students' individual discussion postings to identify instances of SP, CP, TP, and LP in them. We conducted this analysis using the revised versions of the coding schemes for each construct generated in Shea, Hayes and Vickers, (2010) and Shea, Hayes, Uzuner, Vickers, Wilde, Gozza-Cohen, and Jian (2011). Using QCA, we collected indicators of the four forms of presence for each coded discussion and conducted inter-rater reliability analysis with acceptable resulting metrics. We reached an average initial coefficient of reliability of 0.775 which then resulted in a high reliability coefficient of .991 after negotiations. Next, we calculated Spearman's rho correlation coefficients for the four CoI measures to understand which presences in students' discourse, TP, SP, or LP, are closely associated (correlated) with the specific modes of inquiry that move students through the triggering events, exploration, integration, and resolution as described in CP within the CoI framework (Research Question 2).

Finally, to illustrate students' positions in the network of interaction and the impact of the different forms of presence on those positions (Research Question 3), we used social network analysis (SNA). SNA is a useful analysis tool for visually depicting the social structure of interaction among participants in networks. It provides insights into individuals' or groups' centrality with associated measures of the total incoming and outgoing ties each person had with each other known respectively as "prestige" and "influence" (Wasserman & Faust, 2007). In online discussions, a high number of incoming responses directed to a student's discussion posts indicates that his/her ideas may be influential in the discourse and that the student has prestige in the network, and a high number of outgoing responses from a student indicates his/her active participation in the discussions.

While some studies have used SNA to analyze interactions in online and technology-mediated courses (e.g., Aviv, Erlich, Ravid, & Geva, 2003; deLaat, Lally, Lipponen, & Simons, 2007; Heo, Lim & Kim, 2010; Jimoyiannis, Tsiotakis, & Roussinos, 2013; Russo & Koesten, 2005; Tirado, Hernando, & Aguaded, 2012; Xie, Yu, & Bradshaw, 2014), they have not focused on the knowledge building mechanisms (SP, TP, CP, and LP) articulated in the CoI framework. In this study, we examined the relationship between CoI measures of SP, TP, CP and LP found in analyzed discussions and metrics of network centrality. In so doing, we visually resized the student nodes in the discussions to represent frequency and relative contributions of the four CoI constructs. Next, we used Mann Whitney u-tests to determine whether student rankings for LP, SP, TP, and CP and network centrality, prestige, and influence were statistically significant. Finally, we calculated Spearman's rho correlation coefficients for the four CoI presences and the SNA metrics.

5. Results

Our analysis revealed the following results regarding the distribution of the occurrences of four CoI constructs in the discussions: SP (55%), CP (23.4%), LP (15.5%) and TP (6.3%). These findings suggest that TP, as defined by the current CoI framework, was not frequently displayed in the students' discourse, despite the specific assignment of organization, design and facilitation roles to students in the discussions.

Among the four CoI measures, the highest levels of correlation, Spearman rho (16), were observed between student rankings for CP and SP with .95, $p < .001$, followed by LP and SP with .79, $p < .001$, and CP and LP with .75, $p < .001$. TP had a significant but lower correlation with LP .48, $p=.05$. No significant correlations were found between TP and CP or between TP and SP. The results are presented in Table 1.

Table 1.

Spearman's rho correlation coefficients between CoI measures

Variables	Learning presence	Cognitive presence	Teaching presence	Social presence
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Learning presence	-			
Cognitive presence	.753***	-		
Teaching presence	.483*	.302	-	
Social presence	.794***	.952***	.265	-

Note. *p<.05, *** p<.001

Regarding the relationship between CoI measures of SP, TP, CP and LP and centrality, we found that students who ranked highest for LP, SP and CP in their discourse were generally found near the center of the network. In contrast, students who demonstrated high TP rankings did not always have higher measures of centrality (see Figures 1-4 for graphic representations of CoI indicators in students' discourse as they relate to centrality).

Students Ranked by LP Occurrences	
S05	16
S13	15
S06	13
S09	11
S18	10
S11	9
S17	9
S20	9
S02	8
S03	7
S16	7
S04	6
S15	6
S01	4
S19	4
S12	2
S08	1
S10	0

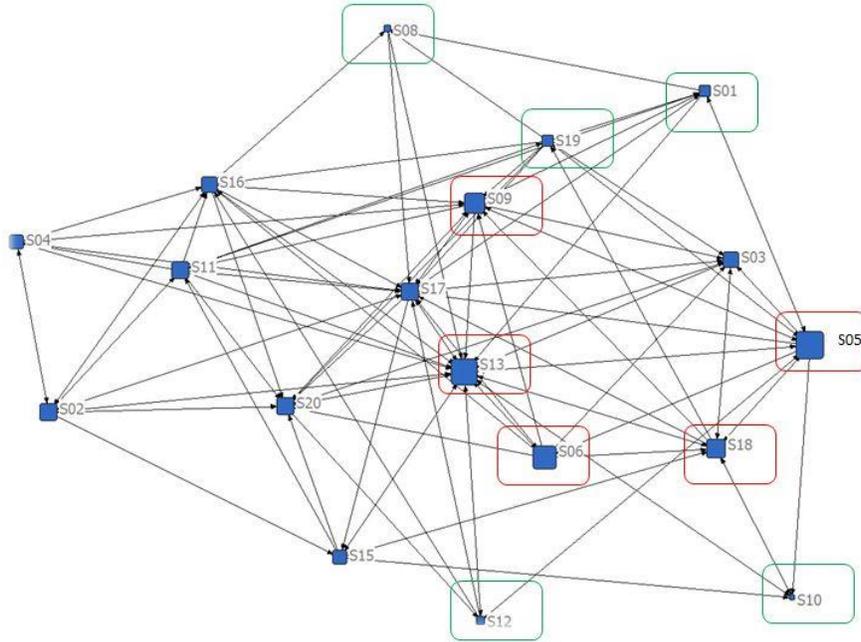


Figure 1. Nodes sized by LP in combined discussions. Highest LP represented in red and lowest LP represented in green.

Students Ranked

by SP Occurrences	
S17	62
S13	50
S05	43
S06	41
S18	32
S09	31
S19	31
S11	29
S04	27
S15	23
S16	22
S20	21
S03	19
S01	18
S02	16
S12	15
S08	2
S10	1

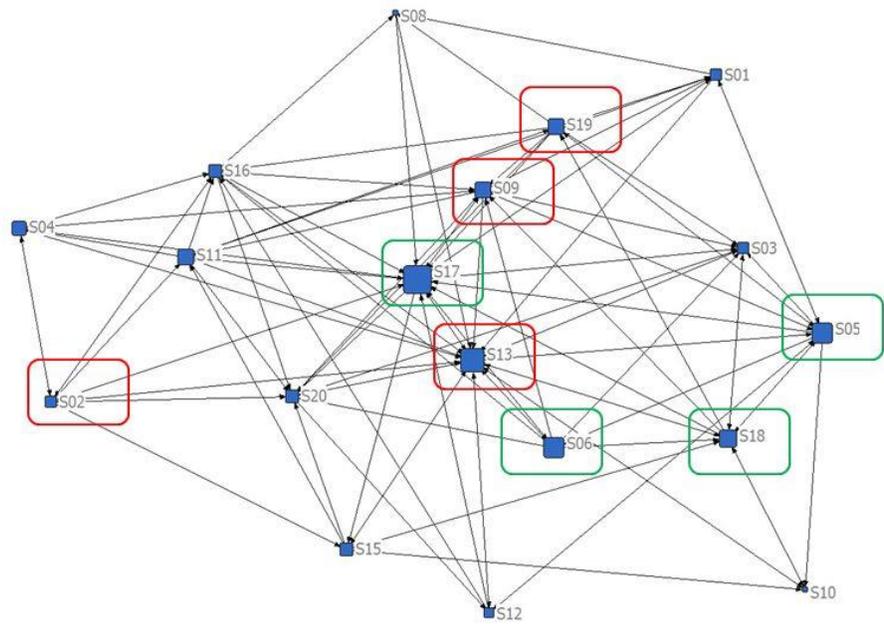


Figure 2. Nodes sized by SP in combined Discussions. Highest SP represented in red and lowest SP represented in green.

Students Ranked by CP Occurrences	
S13	22
S17	21
S05	18
S09	18
S06	17
S19	13
S11	12
S18	12
S16	11
S04	10
S15	10
S12	9
S20	9
S01	8
S02	7
S03	7
S10	2
S08	1

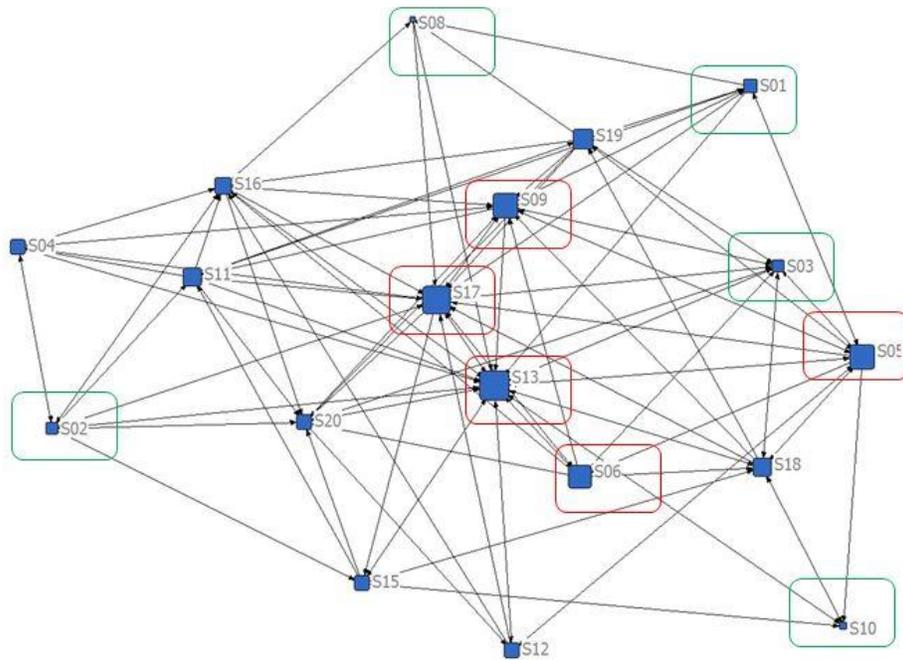


Figure 3. Nodes sized by CP in combined discussions. Highest CP represented in red and lowest CP represented in green.

Students Ranked by TP Occurrences	
S13	20
S09	11
S02	7
S03	3
S20	3
S06	2
S12	2
S17	2
S19	2
S05	1
S08	1
S11	1
S18	1
S01	0
S04	0
S10	0
S15	0
S16	0

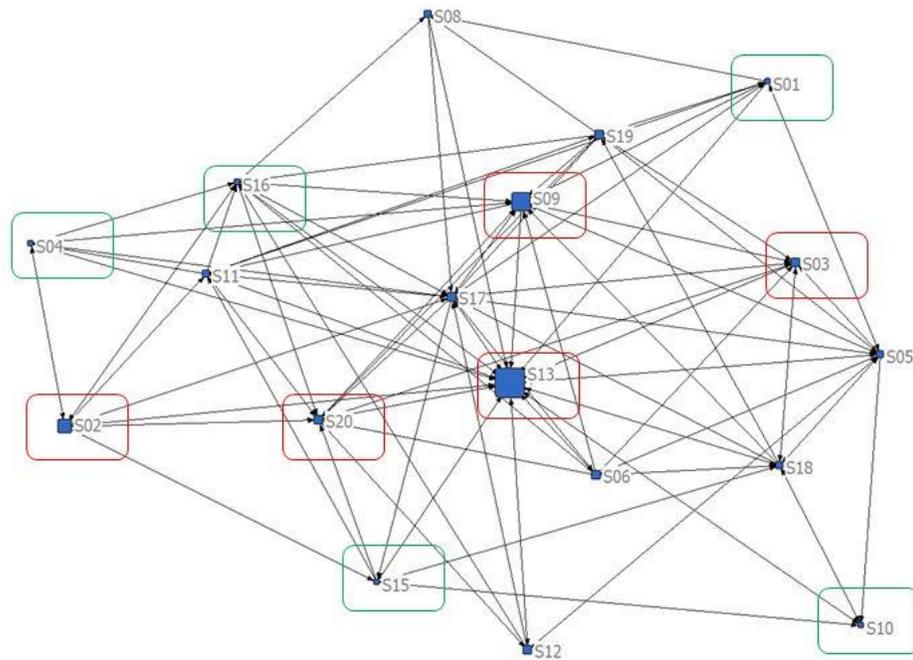


Figure 4. Nodes sized by TP in combined discussions. Highest TP represented in red and lowest TP represented in green.

We found significant correlations between student rankings for LP and network centrality [Mann-Whitney $U = 6.50$, $n_1 = 8$, $n_2 = 10$, $p = .003$, two-tailed]. Rankings for SP and centrality were also statistically significant [Mann-Whitney $U = 9.00$, $n_1 = 9$, $n_2 = 9$, $p = .005$ two-tailed] as were rankings for CP [Mann-Whitney $U = 4.50$, $n_1 = 9$, $n_2 = 9$, $p = .001$ two-tailed]. In contrast, there were no significant

correlations between rankings for TP and centrality [Mann–Whitney $U = 25.50$, $n_1 = 9$, $n_2 = 9$, $p = .185$ two-tailed]. When the relationship between student rankings of CoI measures and network centrality were also examined using Spearman rho (16), significantly high levels of correlation were found for SP [.94, $p = .001$], CP [.92, $p < .001$], and LP [.78, $p < .001$]. The exception was TP. Here, the correlation with centrality was not significant [.45, $p < .10$]. The results are presented in Table 2.

Table 2.

Spearman’s rho correlation coefficients between SNA and CoI Measures

	Prestige	Influence	Centrality	LP s	CP	TP	SP
Prestige	--	.431	.794***	.569*	.543*	.399	.556*
Influence		--	.832***	.781***	.920***	.276	.941***
Centrality			--	.885***	.869***	.451^	.878***
LP				--	.753***	.483*	.794***
CP					--	.302	.952***
TP						--	.265
SP							--

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, ^ $p < .10$

5. Discussion

Two important points should be emphasized in these findings. The first concerns the conceptualization of TP as articulated in the current version of the CoI framework. Although Garrison et al. (2000) suggested the functions of TP can be performed by “anyone in a community of inquiry” (p. 89), TP, as defined by the current CoI framework, was not frequently displayed in the students’ discourse, despite the specific assignment of designer and facilitator roles to students in the discussions. This is not surprising considering that the roles and functions underlying the TP construct in the framework signify ‘teacherly’ activities that reflect instructor rather than student roles.

Garrison et al.'s (2000) contention that the functions of TP can be performed by "anyone in a community of inquiry" (p. 89) is a worthy ideal. Indeed, in a collaborative learning environment, everyone teaches and serves as a resource to one another. However, fully conflating teacher and learner roles, as is done in the current conceptualization of the construct of TP, obscures as much as it illuminates. Therefore, we believe the separation of instructional and learning roles is beneficial for a model of online teaching and learning. Hence, we continue to argue for the incorporation of the LP construct to account for those behaviors that are specific to the learner and which online instructors do not (in fact *cannot*) demonstrate. Further, we suggest a reconceptualization of the TP construct to encompass those roles that are more specific to online instructors. These roles include, but are not limited to: principal guide, coach, and instructional designer, recognized provider of limited but crucial direct instruction, lead supporter of meta-cognition, and ultimate arbiter of 'official' evaluation. Students may also support these roles, but if the instructor does not take them on, a recognizable breach is committed.

Additionally, in the current conceptualization of the CoI framework, TP is presumed to be an important orchestrating form of presence creating the environment necessary for CP to flourish. However, we did not find a strong correlation between TP and CP in actual student discourse. We also did not find significant correlations between students' display of TP and centrality. Together, these findings raise the question as to whether the framework might overstate the contribution of the instructional role for students. In the absence of significant correlations between CP and TP and TP and centrality in this study, we argue that a more productive line of inquiry is to acknowledge LP as the construct that better describes students' unique roles and contributions in online learning. The correlations we found between LP and CP and LP and centrality provide corroborating evidence to validate this argument. We believe that acknowledging the usefulness of incorporating the LP construct into the CoI framework to account for those behaviors that are specific to the learner may bring our theorization of online learning closer to the contemporary models of student-centered knowledge construction (Paavola. & Hakkarainen, 2005; Scardamalia & Bereiter, 1994; Zhang, Scardamalia, Reeve & Messina, 2009).

The second important finding concerns the conceptualization of SP as articulated in the current version of the CoI framework. High correlations found between SP and CP (.95) and SP and LP (.79) highlight the very social nature of learning in online environments. The correlations between SP and CP indicate that the capacity to engage in meaningful interaction for learning, as reflected in CP appears predicated on learner ability to socially connect with interlocutors in online discussions. Additionally, the correlational “overlap” between SP and LP suggests that a component of LP is strategic relationship management through interaction. These correlations indicate that sociability provides a necessary level of lubrication to support students as they collaboratively construct knowledge and self- or co-regulate their learning. In light of these findings, we suggest that SP cannot occur in isolation as the current conceptualization of the CoI framework suggests that it does. We conclude that a more accurate depiction of online learning with the CoI model would locate SP within the attitudes, actions, and words of participants - teachers and students.

Figure 5 provides a visual representation of a tentative model that retains a total of three forms of presence. The contribution of this tentative representation to the enhancement of the CoI framework is that it reflects the unique contributions of students and teachers to the model and also embeds the social dimension as part of each presence. In this representation, Social-Learning Presence (SLP) reflects the attitudes, abilities, and behaviors that students bring to their individual and collaborative online activities to self- and co-regulate their learning, and Social-Teaching Presence (STP) reflects the roles specific to online instructors, each with a shared emphasis on the social dimension of teaching and learning. Finally we conclude that it is important to more clearly emphasize that knowledge construction is not simply cognitive but rather a socio-cognitive process and that this is reflected in the tentative model with Socio-Cognitive Presence (SCP).

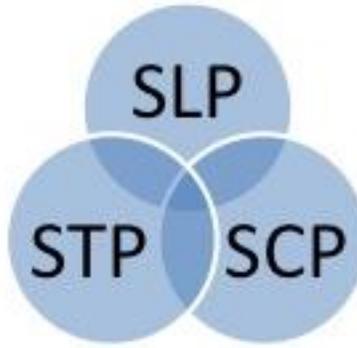


Figure 5. The tentative reconceptualization of the CoI framework

6. Conclusion

This study addressed the shortcomings of the CoI framework in articulating the unique contributions students bring to their online learning, an issue that is seldom systematically examined in empirical research. Given the prominence of the framework in online education practice and research, continued focus to enhance its explanatory power is of paramount importance. This served as the motivation for the current study, which is both exploratory and confirmatory by nature. The evidence presented here uncovered the critical relationships between the framework's individual components. Using these findings, we provided a tentative reconceptualization of the CoI framework for future CoI-related research.

Appendix

Learning Presence (LP) Indicators and Examples

Category	Indicator	Description	Example	Source
Forethought & Planning	Goal setting	Deciding upon specific actions and outcomes	At the end of next week, as a team, we have to submit a summary of our discussion points.	Zimmerman (2000)
	Planning	Deciding on methods/strategies appropriate for the task	Why don't we list (all of us) what we perceive to be the cons of outsourcing.	Zimmerman (2000)
	Coordinating, delegating or assigning tasks to self and others	Distributing, sequencing tasks and sub-tasks to others/self for future completion	I will take care of the intro and the summary. I have to work all night tonight. I will submit it for the group tomorrow evening sometime.	Emergent
Monitoring	Checking for understanding	Seeking verification of understanding of tasks, events or process	If we paraphrase... I am pretty sure the in-text citations are not required. You can check: http://esc.angellearning.com	Zimmerman (2000)
	Identifying problems or issues	Identifying difficulties related to materials, technologies, understanding (e.g. confusion) etc. that interfere with completion of tasks, performance, products or other outcomes	I believe the assignment is 500 words or less so we may need to skimp down a bit.	
	Noting	Comments that	I did some research and then	Emergent

completion of tasks	indicate that certain tasks or activities have been finished to support attaining a goal.	typed up the employer section.	
Evaluating quality	Evaluating the quality of a product, its content or its constituent parts as students work toward completion	After I went back and read it, I was not pleased with myself. I reviewed the posting criteria. I believe I was a little too opinionated, not enough reference in my posts	Azevedo et al. (2004)
Observing or monitoring during performance and taking corrective action	Statements that monitor individual or group performance that result in corrective action based on feedback or reflection	I think we need a solid intro and conclusion. As the paper stands now, we have none.	Zimmerman (2000)
Appraising personal interest, engagement or reaction.	Comments about self or others' engagement, interest, commitment or participation. Also includes personal "reactions" to tasks, materials and activities.	I found that information [in the chapter] all new and a little scary.	Azevedo et al. (2004)
Recognizing learning behaviors of self or group (i.e., metacognitive knowledge)	Statements about individual or group's preferences, strengths or weaknesses as learners.	I am more of a hands-on learner.	Emergent
Advocating	Encouraging	I'd encourage my classmates	Curtis &

	effort or focus	others to contribute or focus on tasks, materials and activities.	not be intimidated by the boring title of "ethics."	Lawson (2001) Zimmerman (2000)
	Noting use of strategies	Statements that illustrate that students are mindful and aware of the strategies that they are using	I decided to extract concepts from the graphic organizer on page 26 and Google each word to try and make sense how the concepts tie together.	
Strategy Use	Seeking, offering or providing help	Requesting, offering, or providing assistance related to learning materials, tasks, processes or products.	If you need any assistance, please let me know what I can do to help you out.	Curtis & Lawson (2001)
	Recognizing a gap in knowledge	Statements indicating that students are aware of a gap in knowledge and its connection to the current task, process or product.	I realize I don't know how to cite an online article without the author or the date published. I need to check APA formatting to cite the source correctly in my paper.	Emergent
	Reviewing	Comments noting the need to review or the completion of reviewing content related to the course.	I would need to refer to this chapter in order to review the principles of this philosophy	Emergent
	Noting outcome expectations	Statements in which students acknowledge the relevance of current tasks or processes to a	At present, all I know is that grasping the epistemology of inquiry will help me read research in a more informed and holistic way.	Zimmerman (2000)

future outcome

	Seeking / offering additional information	Looking beyond course content and materials to locate additional information to deepen understanding	The answer to my question was provided by Trochim (2005).	Emergent
Reflection	Change in thinking	Statements that indicate a change in thinking as a result of process, product or outcome	This issue is not as simplistic as I once thought...	Emergent
	Causal attribution of results to personal or group performance	Statements in which students credit their results to their performance (i.e., use of forethought planning, monitoring, strategies)	I think this was because I was now able to make associations with time periods.	Zimmerman (2000)

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