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Exploring differences in online professional development seminars with the community of inquiry framework

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Four sessions of two professional development seminars were offered to members of an organization. The seminars were voluntary, free of charge, and participants did not receive credit for their attendance. Participation rates and exit survey ratings for the four sessions varied. After the seminars, an analysis using the community of inquiry framework (Garrison, Anderson, & Archer, 2000) was conducted to better understand what occurred in the dialogue of the seminars to understand whether patterns of facilitator actions related to the amount of participation and exit survey ratings. The design of the seminars, the activities in the seminars, and the importance of the facilitator to plan and then help foster interaction in voluntary professional development seminars are discussed relative to the community of inquiry model.

Keywords: community of inquiry framework; online learning; online professional development

We examined four sessions of two online professional development (PD) seminars offered to CLTNet members (www.cltnet.org). CLTNet, pronounced C-L-T net, was the virtual network of the Centers for Learning and Teaching, funded by the National Science Foundation. The seminars lasted for two weeks and each covered one topic; each topic was offered in the summer of 2006 and was repeated in the summer of 2007. The

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seminars focused on Web 2.0 tools in teaching: Blogs, Wikis and Podcasts and Pedagogy in Online Learning. The seminars were free of charge to participants who did not receive any credit for attending and were not required to participate actively in the discussion if they did attend. The participants' perceived quality ratings on exit surveys ranged from an average of fair for one seminar to almost excellent for another seminar; ratings varied both by topic and year.

We used the conceptual model of community of inquiry (CoI) (Garrison, Anderson & Archer, 2000) to retrospectively understand what accounted for the difference in the ratings for the seminars. The CoI model was developed for studying computer-mediated communication, and it identifies the elements and the interrelationships among them that are essential for successful education experiences. Although PD seminars are different from formal courses, they are an educational experience and the CoI model has been used to study PD seminars (Vaughan & Garrison, 2005; 2006). We see one significant difference, in courses, participation and high-quality discussion seem to be related to an explicit link between collaboration, dialogue, and the evaluation instructors do of participants' contributions, e.g., their telling students that collaboration is important, how to do it, and that it will be assessed (Haavind, 2007; Swan et al., 2000; Swan, Shen & Hiltz, 2006).

Theoretical framework

The community of inquiry framework identifies *social presence*, *cognitive presence,* and *teaching presence* as essential elements of an educational experience.

Social presence relates to how members of a group can share and interact. It is generally defined by indicators of group cohesion, collaborative activities, open communication or being able to express any view, and emotional expression and support. Current research on social presence investigates a trade-off between social interactions that are of a more personal nature and those of a purposeful nature. Research on professional development suggests that initial social interaction may be important for the creation of a community in which learning can occur and that purposeful interaction occurs less frequently in groups where social relationships are not first established. Thus, social presence is thought to provide the context in which critical dialogue and inquiry can occur (Vaughan & Garrison, 2006). Further, it is argued that personal relationships alone are not enough for educational purposes, but rather they must be defined in academic terms or, in the case of the PD seminars, professional terms (Garrison, 2007).

Cognitive presence is defined as brainstorming, exploring topics, integrating information, constructing understanding, and applying that understanding in reflection and dialogue. Vaughan and Garrison (2005) report that in university faculty PD seminars with both online and face-to-face interaction, cognitive presence was found in both types of interaction but it was usually only the exploratory stages of cognitive presence, that is, brainstorming and exploring topics. Evidence of integration was considerably less, and resolution, or applying the new information, was barely present in the PD interactions. Vaughan and Garrison (2005) suggested that activities in PD work should be structured to include application and resolution.

Teaching presence is what sustains the learning experience and encourages inquiry. Teaching presence is believed to consist of design, facilitation, and direct instruction. Current research on the teaching presence element (Arbaugh & Hwang, 2006; Shea, Fredericksen, Pickett, & Pelz, 2004) has investigated whether design, facilitation and direct instruction are three separate constructs or just two. At an intuitive level, seeing direct instruction as a type of facilitation is easy, as is seeing design of the educational experience as a distinct separate factor. (Although direct instruction is indeed a type of facilitation strategy, it is not the only or the best approach to facilitation, especially when trying to encourage constructivist learning in a community of inquiry.) Factor analytic studies have found both two- and three-factor solutions for the element of teaching presence. Design was always present as a factor and the others, direct instruction and facilitation, were found both as distinct factors and as a combined factor (Arbaugh & Hwang, 2006; Shea et al., 2004). In this paper, design of the seminars and facilitation (including direct instruction as a type) are considered.

These three elements—social, teaching, and cognitive presence—are illustrated in the CoI model (Figure 1) with three overlapping ovals (Garrison et al., 2000). The educational experience occurs in the area the three ovals share (center). The elements sit within a communication medium. The seminars discussed in this paper were held in a online environment with asynchronous dialogue on discussion boards.

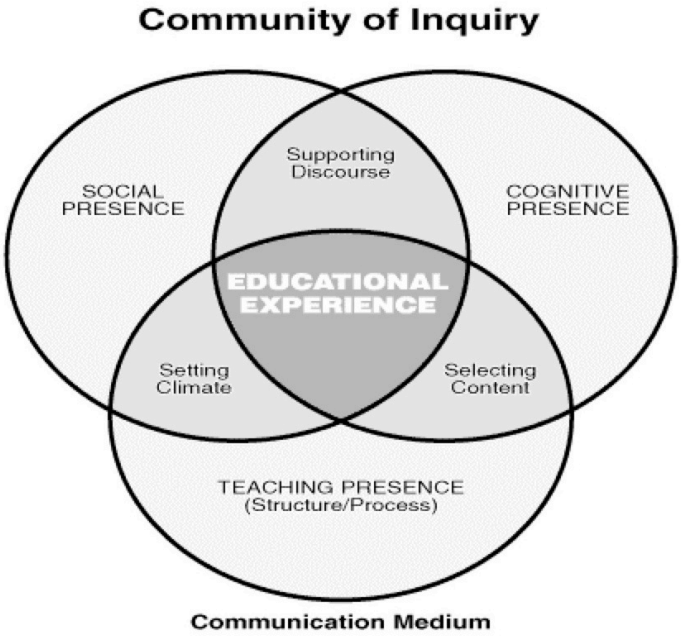

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Figure 1. The Community of Inquiry Model

Methods: Coding scheme application

Three coding schemes were adapted and applied to the discussion board posts made in the four seminar sessions. One coding scheme was for facilitator posts (Haavind, 2006), and two were used for participant posts (Harasim, 2002; Schlager, Fusco, & Schank, 2002). The coding schemes were used to identify the elements of presence (teaching, social or cognitive) in the seminars.

The coding scheme for facilitator posts adapted from Haavind (2006) served to identify the pedagogical moves and style of the facilitators. The discussion board posts were coded on *public praise*, *negative evaluations*, *constructive criticism*, *direct*

instruction, *offering resources*, and *probing* as indicators of general teaching presence. *Collegial joining as a participant* indicated social presence of the facilitator. Collegial joining as a participant can be thought of as joining in the conversation as a discussant, for example, adding an example or another idea during brainstorming as an equal. Codes indicating cognitive presence were found in the facilitator voices described by Collison, Elbaum, Haavind, and Tinker (2000):

- Generative Guide–Gently restates dialogue purpose to engage on-track participation
- Conceptual Facilitator—Uses participant insights to point toward conceptual areas requiring further consideration
- Personal Muse—Models internal dialogue that might occur during critical exploration
- Mediator—Engages directly, but evenly, with dissonant points of view to maintain open dialogue in disagreement
- Reflective Guide—Mirrors participants' ideas to support further insight in a nondirective albeit purposeful way
- Role-play—Creatively or playfully brings in alternative perspectives.

The participant codes used (Harasim, 2002) were *idea generating*, *idea linking*, and *intellectual convergence*. Idea generating is introducing ideas, offering opinions, or providing examples. Idea linking occurs when posts reference a previous post and link ideas. Intellectual convergence occurs only when participants are collaborating heavily to co-produce a product such as a report. These three codes indicated cognitive presence and the depth of it among participants.

To further characterize participant posts, we adapted codes used to study face-to-face business meetings (Olson, Olson, Carter, & Storrosten, 1992) and synchronous chat sessions in an online environment (Schlager, Fusco & Schank, 2002). The codes were *social*, *meeting management*, *technical questions and answers*, and *topical questions and answers*. All the additional codes, except topical questions and answers were indicators of social presence. Topical questions and answers was an indicator of early or exploratory cognitive presence and was similar to idea generating except that it was posed by the participant as a question to gain foundational information on which to build knowledge.

The coding scheme was applied to all nonintroductory, substantive threads with more than four posts in them. Introductory posts, socially motivated replies, and threads that were part of activities to familiarize participants with different methods of building initial trust and safety (Zheng, Veinott, Bos, Olson, & Olson, 2002), although essential for community building, were excluded. Threads with three posts were excluded because they were found to involve only an initial poster questioning, a second poster answering, and the initial poster responding with "thank you" or "I agree," which is not a substantive contribution (Haavind, 2006). One coder coded all qualifying discussion board posts, and a second rater coded 10% of coded posts. For all four of the seminar sessions, there was an 89% interrater rate of agreement.

Data

The data included discussion board posts from the four 2-week seminars and the reported ratings of satisfaction from the participants. (We refer to the seminars as

BWP06, BWP07, POL06, and POL07.) Table 1 shows a summary of the discussion board data. Table 2 shows a subset of the exit survey data.

	BWP06	BWP07	POL06	POL07
Total number of posts	82	412	124	206
Number of threads	17	42	17	28
Number of threads with four or more posts	4	30	5	11
Number of active participants*	7	15	7	8
Average number of posts in a thread with more than four posts	9.25	9.1	7.75	9.09
Percentage follow-up replies by facilitators in coded threads	65	31	36	38

*More were enrolled, but "active" designates participation in more than two posts.

Table 1: Summary data from the discussion board.

	BWP06	BWP07	POL06	POL07
Level of agreement with "I gained a better understanding of [the topic] from the Colloquium." (5-point scale)	3.40 *n* = 5	4.17 *n* = 12	3.70 *n* = 10	4.40 *n* = 5
Ratings of quality of content and resources (4-point scale)	2.75 *n* = 4	3.45 *n* = 11	3.11 *n* = 9	3.6 *n* = 5
Ratings of quality of discussions (4-point scale)	2.25 *n* = 4	3.08 *n* = 12	2.78 *n* = 9	3.4 *n* = 5

The *n* varies because of the ability to skip questions on the survey.

Table 2: A subset of the participant satisfaction exit survey.

Results

The data show that the 2007 seminar sessions had more participation than the 2006 seminars even after accounting for different enrollment rates. The exit-surveys showed that both the 2007 seminars had higher satisfaction ratings than those in 2006.

At first glance, the summary data might indicate that the 2006 seminars were the same because of the low level of participation. However, an analysis of the percentage of follow-up replies by facilitators in the substantive coded threads (last row in table 1) revealed a different pattern of facilitator replies in the BWP06 seminar than in the three other seminars—different even from the POL06 seminar. The pattern of facilitator postings in the BWP06 seminar indicated a potential problem. Facilitators made more than half the substantive posts (65%) compared with the other seminars, in which they made fewer than half of the posts (range 31%–38%). The extended dialogue in the BWP06 seminar involved much less participant interaction and hence less dialoguing to learn (Haavind, 2006). Although this pattern of a high number of facilitator posts suggests a problem existed for the participants, it does not explain what it was or what the cause was.

In addition, the BWP06 seminar had the lowest satisfaction ratings and the least participation. The coding scheme analysis of facilitator posts did not explain why BWP06 was different. It did reveal that BWP06 was similar to BWP07 and POL07 in that facilitators made posts reflecting all elements—teaching, social, and cognitive—although there were fewer posts indicating cognitive presence. The coding of the posts did not

reveal significant differences in patterns of facilitator posts, but the BWP06 seminar transcript reads as if the facilitators were trying to fill space or cajole participants into posting something. One facilitator of BWP06 remarked that it felt like a great deal of work to get the participants to converse, "I feel like I'm posting all the time and no matter how many posts I make to try to start conversations, it's just me and the other facilitators posting." BWP06 had very low participant cognitive presence. New questions emerged: Why was BWP06 so different from the other seminars? What other differences were found among the seminars? How did they relate to the exit survey data?

A post made by a participant in BWP06 helped uncover an answer to the question about why BWP06 was so different. It said:

> I'm surprised at how little I knew/know about Wikis, Blogs and podcasts—I feel like I'm in slow motion as I try to understand what they actually are, how they actually work (this seminar has been fabulous for that) and my thinking REALLY slows down when I try to think about how I would use them productively in my courses. So much to think about!

The participant did not intend to highlight a problem with the seminar in the comment, but the post revealed a problem in the design of the seminar.

Design problem

The seminars were designed to *introduce* participants to two different topics. In BWP06, it was decided that information would be presented, participants would be encouraged to explore and learn, and then a discussion would emerge from participant questions. However, the plan failed to consider that participants might not be able to formulate questions after a quick introduction. The design of the BWP06 seminar

(specifically, the teaching presence design) required too much of participants and did not fit with the description of the seminar in the invitation that recruited participants.

> If you don't have a lot of time, but are interested in taking part, we recommend that you enroll, and introduce yourself (when the session starts), but let us know that you will most likely be "lurking" and exploring the resources but that you won't be able to participate a great deal.

Before the seminars started, there was a mismatch in the participants' expectations and the facilitators' design. Lurkers were invited, but the design of the seminar required participants. Expectations were therefore falsely set for the participants, so it is not surprising they found the seminar lacking and unsatisfying. The facilitators for the seminar were prepared to *share* expertise, they had been asked to prepare one or two "conversation starters," but they were not prepared with activities related to the materials. Without well-thought-out activities to provide an easy entry points for participants, many participants disengaged, and they had permission to do so, given the explicit invitation to lurk. This dissonance could have been a cause of the dissatisfaction registered in the exit survey.

The same message, "come and listen even if you don't have time to participate," was part of the recruitment for the POL06 participants, but the facilitators of the POL06 seminar designed it with an emphasis on community-building activities at the beginning. In addition, explicit discussion of lurking versus participation occurred in a community-building thread.

From the facilitator:

> Hello to all of the Lurkers, We understand that many of you are overwhelmed with life. (I know I am.) And it is safe to sit back and listen. And there is some learning that can be done this way. However, in my online [university name] courses there

> is no lurking. I tell my students that learning is a contact sport. We shape the learning and if each person is not participating the course of the learning suffers. Each person brings a unique perspective—one that none of the rest of us share. If we do not get to see the ideas from this person's perspective we are all losing out.

From a participant:

> Facilitator, You are so right!!! We all need to be engaged to benefit. I especially appreciate your perspective—"We shape the learning and if each person is not participating the course of the learning suffers. Each person brings a unique perspective—one that none of the rest of us share. If we do not get to see the ideas from this person's perspective we are all losing out." I will jump in fully!! Best – [Participant name]

The discussion of lurking and participating helped bring together participant and facilitator goals and expectations. An interview with one of the POL06 seminar leaders indicated that she was aware of the potential problem of inviting lurkers and expecting participants and had specifically designed activities to help compensate for this problem. POL06 seminar activities were designed (teacher presence) to first engage the participants in a useful community-building activity that was not difficult to promote social presence before moving into more challenging inquiry-based dialogue (cognitive presence).

The community-building activity did not include substantive discussion, but it helped the participants in the POL seminars understand the importance of social interactions for learning online and resulted in the seminars having more activity overall. Vaughan and Garrison (2006) surmised that developing social presence may provide the context in which critical dialogue can occur. In the posts, the participants expressed that they learned a lot about the need for social interaction and social presence in online learning from the community-building posts. In their research, Swan and Shih (2005) found significant correlations between perceived social presence and satisfaction with

online discussions. The POL seminars had higher ratings than the BWP seminars each year, and the POL seminars had the most opportunity to build social presence. With the constraint of no credit or requirement for participating actively, special attention must be paid to the design of the seminars to bring participants and encourage their active participation in the seminar.

The coding scheme also revealed that the methods facilitators most commonly used for interacting with participants were *collegial joining as a participant*, *offering resources*, and *direct instruction*. There were no negative evaluation posts and almost no public praise by the facilitators. Public praise has been known to end conversation (Haavind, 2006). Although the facilitators were engaged and present, as indicated by the teaching presence code, there was no evidence of their trying to lead the participants into deep inquiry in their dialogue because no posts by the facilitator to foster cognitive presence were found. It may not have been possible for the facilitators to help the participants have deep critical inquiry in the 2-week seminar, but we do not believe it can happen without a facilitator guiding the direction of the seminar and the inquiry (Garrison et al., 2000).

When we examined participants' posts in BWP07, POL06, and POL07, we found that at least 58% indicated cognitive presence. Idea generating, idea linking, and topical questions were the codes used on posts. No post in any of the seminars was coded *convergence of ideas*. This was not unexpected because the seminars were only 2 weeks long, they were introducing topics to the participants, and the facilitators were not

guiding the participants into deeper inquiry. In posts and comments about the seminar, many of the participants remarked how they had not considered these topics or realized what they could potentially do with technology in their teaching, indicating they were just starting to think about the topics. In addition, it convergence in any of the seminars would be surprising because the participants were not engaged in a group activity with the goal of drafting a paper or product together. Work by Vaughan and Garrison (2005) showed it was difficult to get professional development seminars to move into application or resolution of the ideas discussed, partly because in the exploratory stages dialogue is less difficult as participants are not challenged to develop shared and cohesive ideas. Because of the value in exploring ideas with colleagues and having the opportunity to think together with a group, the participants in these PD seminars were not explicitly asked to develop consensus on ideas.

Evolution of the seminars

Because a problem was found in the design of the seminars, we considered retrospectively how they evolved over the course of the 2 years. A recent paper (Shea & Bidjerano, 2009) discussed how the CoI model could be used as a "conceptual touchstone" for online instructional design of instructional experiences.

At the most basic level, the seminars were designed to introduce two new topics. The facilitators of the POL and BWP seminars took different approaches. The facilitators of the POL seminars had made the learning objectives manageable and clear given the time constraints, using a distinct structure for presenting activities that were easily

engaging over a 2-week period. In the first year of the BWP seminars, the facilitators had decided that background materials would be presented and participants would be encouraged to explore the tools and read the materials and bring their questions to the discussion. This plan did not work for the participants in BWP06. The facilitators' plan failed to consider the participants' limited background with the topic and that it might be too difficult to have a thoughtful discussion after a quick introduction to the materials. The design of the seminar (part of teaching presence) required too much of the participants and did not fit with the invitation and initial description of the seminar that recruited participants.

The responses in the exit surveys revealed that participants in the POL06 seminar were more satisfied than those in the BWP06 seminar. In addition, the POL06 had more participation (see table 1). However, many people enrolled in the "successful" POL06 seminar but then did not participate. Activities were created to improve the BWP07 seminar to help learners new to the topic more easily engage in the seminar. Other changes that occurred over the 2 years were as follows.

(1) The seminars were new in 2006 and repeated in 2007, so some of the increase in participation and satisfaction could be attributed to better structure of the seminars that occurs when an initial delivery has been revised for a second round.

(2) Feedback on the 2006 seminars indicated that too many seminars might have been occurring simultaneously or too close together. Because of this feedback, fewer seminar choices were offered in 2007 so that participants could devote more time to

the ones they joined. This may have given the participants more time to focus on the topics they selected.

(3) Between 2006 and 2007, more teachers and university faculty members probably had become familiar with technology on their own and came to the seminars with more understanding and questions of their own. We know the use of blogs for all users, not just educators, more than doubled, from approximately 32 million in April 2006 to approximately 70 million in April 2007 (http://www.sifry.com/stateoftheliveweb/). The prevalence and ubiquity of the new technologies may have increased the motivation of participants.

(4) Many of the participants in 2007 were employed in an organization that was making an effort to do more online work in courses. Participants from this group seemed to be *very motivated* to be in the seminars, learn the content, and really interact and learn because they would be using this information in their courses in the fall. This motivation to learn may have provided the same type of motivation as grades or evaluation to increase collaboration and dialogue (Haavind, 2006; Swan et al., 2000; Swan, Shen, & Hiltz, 2006). This could have been a natural just-in-time learning moment that contributed in part to enhanced success of the seminars the second time around.

That more educators became familiar with technology and many participants would be applying technology in their own courses serve to underscore a valuable and practical piece of advice for designers of voluntary seminars: *recruit motivated participants who have a real need and who can provide their own intrinsic motivation*.

As developers of online communities, we know tapping intrinsic motivation is important, but this was an important reminder of just how important it is (Kim, 2000; Preece, 2000).

Summary

Using the CoI model helped illuminate weaknesses in online seminars. In a situation where PD seminars are provided but no credit is offered, it is especially important to understand how to motivate participation. The seminars were intended to engage participants in real, useful inquiry and collaborative exchange about the ideas and materials, but because the seminars were introductory a great deal of structure was needed.

In the first year the seminars were offered, a design problem created poor conditions and a misfit between participant expectations and facilitator strategies. In one of the seminars, the design problem was partially addressed by the facilitators intervening with explicit dialogue addressing the issue and creating new expectations (teacher presence). In the other seminar, however, the design problem was not addressed and may have been responsible for the low participation and low satisfaction ratings. The community of inquiry methodology uncovered the design flaw when the substantive threads were reviewed and coded.

In the second year of the seminars, more motivated participants and activities that helped novice participants engage initially in both seminars most likely led to increased participation and higher perceived quality and satisfaction ratings. Both seminars had

more than double the number of participant posts and evidence of significant cognitive presence, teaching presence, and social presence.

This work highlights the crucial role of the seminar leader or facilitator for pushing the seminar to meet its goals and objectives. Well-planned activities that appropriately match the needs and level of effort a participant is willing to put forth are crucial. It also demonstrates the importance of finding ways to entice participants to participate in seminars without credit or requirements by starting with activities that provide easy successes. In addition, participants who have their own intrinsic motivation are a wonderful asset and help increase social presence and cognitive presence in inquiry discussions. This work hints at the importance of social presence in relation to satisfaction ratings (Swan & Shih, 2005).

Finally, this retrospective work also supports the idea of utilizing the CoI framework as a planning tool for the development of seminars.

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Sarah Haavind, Ed.D., is an assistant professor in the STEM division at the Lesley University School of Education in Cambridge, Massachusetts. She teaches online courses in the TERC/Lesley masters Science in Education program for elementary and middle school teachers seeking an advanced degree. Before joining Lesley, she was a senior online curriculum designer and instructor at the Concord Consortium where she served on the original faculty of the Virtual High School's Teacher Learning Conference. She also produced NSF-funded online professional development curriculum across 11 mathematics and science disciplines. Her previous professional experience includes secondary teaching as well as curriculum development and teacher training for a Ford Foundation national dropout prevention program. Dr. Haavind holds a masters and doctorate from Harvard Graduate School of Education. She is co-author of *Facilitating Online Learning: Effective Strategies for Moderators* (Atwood, 2000) based on the VHS and INTEC experience with scaling quality professional development online. Her current research focus is promoting deepened learning using online, asynchronous collaborative dialogue as a constructivist learning activity across the curriculum.

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