

From Personal Meaning to Shared Understanding: The Nature of Discussion in a Community of Inquiry

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Abstract

This study investigated the process by which shared understanding develops in a chat learning space. Findings suggest that individual meaning reflected in triggering events and exploratory statements is transformed through discussion into statements that integrate ideas from group members and create shared solutions. The findings show that chats are spaces that can lead to shared understanding.

Introduction

This study examines the interactions of students in a blended learning environment as they shift from personal meaning to shared understanding negotiated in a chat learning space. It uses the Community of Inquiry framework developed by Garrison, Anderson, and Archer (2000) to examine how learners experience cognitive presence in chats that support knowledge construction.

In many Web-based and Web-enhanced courses, learners are expected to share their experiences, negotiate meanings, and construct subject-matter knowledge through discussion. Brookfield and Preskill (2005) champion discussion as a way of teaching that enhances democratic participation. Constructivist educators generally agree that discussion in communities of inquiry contributes to higher-order thinking and helps learners create knowledge (Garrison et al., 2000). A number of researchers have explored online discussion postings in terms of cognitive presence (Garrison, Anderson, & Archer, 2001; Meyer, 2003; Pawan, Paulus, Yalcin, & Chang, 2003). Fewer studies examine cognitive presence in real-time environments (Vaughan & Garrison, 2005). Given that discussion that leads to shared meaning is an expectation in many blended courses, and that little is known about how it develops in synchronous learning spaces, this study seeks to bridge the research gap by investigating how shared meaning develops during the chat process. Improved understanding of how cognitive presence develops may help instructors facilitate higher-quality discussions in online inquiry-based environments.

Purpose of the Study

The purpose of this study is to examine how meaning develops through the chat process in a way that reflects the dynamic relationship between personal meaning and shared understanding in a community of inquiry.

In this study personal meaning is conceptually defined as individual construction of meaning, which involves not only cognition but also a combination of affect and personal experiences. Personal meaning is operationally defined in terms of the practical inquiry model as statements that represent triggering events and exploration (Garrison et al., 2001). Shared understanding is conceptually defined as the dynamic relationship of incorporating personal

meaning and integrating knowledge that has been received by the group. Shared understanding is operationally defined as statements that represent the integration and resolution phases of the practical inquiry model (Garrison et al., 2001).

The research questions are (1) What is the process by which shared understanding develops in a chat learning space? (2) How does the conversation flow during a chat in terms of the practical inquiry model?

Conceptual Framework

This project is based in social constructivism, which recognizes social processes in individual knowledge building (Vygotsky, 1978). This study explores those processes within a Community of Inquiry framework that assumes higher-order learning occurs through the interaction of social, teaching, and cognitive presence to produce a worthwhile learning experience (Garrison et al., 2000). Social presence entices participants to remain engaged in an educational experience by creating enjoyable group interactions and personally fulfilling learning activities (Rourke, Anderson, Garrison, & Archer, 2001). Teaching presence accounts for the design and facilitation of educational experiences that tie social and cognitive presence together to achieve learner outcomes (Anderson, Rourke, Garrison, & Archer, 2001). Cognitive presence represents meaning making through sustained communication (Garrison et al., 2001).

Garrison et al. (2001) operationalized cognitive presence through a practical inquiry model that has four phases: triggering events, exploration, integration, and resolution. Triggering events reflect issues or dilemmas that begin to surface. During the second phase, exploration, learners search for information, knowledge, and alternatives to assist in deeper understanding of the situation or problem. In the third phase, integration, learners construct meaning from the ideas formulated in the exploratory phase by critically linking concepts and creating solutions. In the fourth phase, resolution, learners defend solutions or apply new knowledge. Practical inquiry is useful for testing cognitive presence due to the model's generic structure and its ability to be used in a formal educational experience (Garrison et al., 2000).

Context of the Study

The learners in this study were enrolled in a course about the philosophical and historical roots of adult education in American society. The course uses a dialogical, constructivist approach in which learners make meaning by formulating ideas and refining them through the responses of others. There were three face-to-face sessions: at the beginning, middle, and end of the course. Throughout the quarter, learners worked in small groups to complete course requirements. This included contributing to weekly small-group discussions related to issues presented in the readings and questions posed by the instructor. Each group member served at least once as a discussion moderator, who compiled a group response to the weekly questions and posted the response to the class discussion board. Seven groups were formed by learners' affinity or their proximity to one another in the initial class, which met in person. Five groups chose to work online and two chose to conduct their small-group discussions face to face.

Method

This study used content analysis to investigate the development of cognitive presence through the practical inquiry process. Content analysis goes below the surface-level measurement of online communications (Krippendorff, 2004). This approach allows text to be

coded and summarized, and it permits frequencies or percentages to be determined for comparison purposes and statistical testing (Strijbos, Martens, Prins & Jochems, 2005).

One group was randomly selected to participate from four groups that met online. That group's transcripts from weeks three and seven were analyzed. Those weeks were chosen because they represented the first and last transcripts available and provided the opportunity to observe the greatest potential change in cognitive presence over time. The content was coded according to protocols for teaching presence (Anderson et al., 2001), social presence (Rourke et al., 2001), and cognitive presence (Garrison et al., 2001).

The meaning unit for chat transcripts was a complete participant response (Vaughan & Garrison, 2005). This included a message containing a period at the end, the word *end* after a response, or statements joined by ellipses. Discussion postings were analyzed at the paragraph level (Riffe, Lacy, & Fico, 2005).

Three coders, who are graduate students, received 13 hours of training by a member of the research team who has worked extensively with the protocols. Transcripts from weeks not included in the study were coded as part of training. Initial training was followed by a pilot test and further training before coders worked independently to analyze transcripts for this study.

Results

Reliability testing was conducted on the complete transcripts using Krippendorff's (2004) alpha (α) (see Table 1). This measure was selected because it accounts for chance agreement among multiple coders and accommodates ratio data. A minimum level of 80% is considered the theoretical standard for a content analysis study to be considered reliable (Riffe et al., 2005). Because low agreement on one of the transcripts would have permitted tentative conclusions only (Krippendorff, 2004), reliability was recalculated using two coders (Neuendorf, 2002).

Table 1. Krippendorff's Alpha Coefficient for Interrater Reliability

Number of Coders	Chat 1 Transcript	Discussion 1 Transcript	Chat 2 Transcript	Discussion 2 Transcript
Three	.89	.67	.83	.96
Two	.98	.99	.81	1.0

Note. Alpha (α) was computed from an SPSS script developed by Hayes (2005).

Social, Teaching, and Cognitive Presence

Cognitive presence accounted for the highest percentage of coded meaning units in all transcripts (see Table 2). Social presence remained fairly consistent from one chat to the next, while teaching presence declined during the second chat. Discussion postings, which resulted from the group's chats, exhibited cognitive presence exclusively.

Time spent in chat sessions amounted to 1 hr 8 min for chat one and 1 hr 5 min for chat two. Although the time spent was essentially the same, the units of meaning differed (148 in chat one and 190 in chat two) perhaps because a group member missed the first chat.

Table 2. Percentage of Meaning Units Coded as Social, Teaching, and Cognitive Presence

Presence	Time 1		Time 2	
	Chat	Discussion Posting	Chat	Discussion Posting
Social	27	—	29	—
Teaching	18	—	13	—
Cognitive	55	100	58	100

In both chat transcripts, exploration accounted for the highest percentage of meaning units, followed by integration, triggering events, and resolution (see Table 3). Integration and resolution were evident in the discussion postings.

Table 3. Percentage of Meaning Units Coded as Cognitive Presence

Practical Inquiry Phase	Time 1		Time 2	
	Chat	Discussion Posting	Chat	Discussion Posting
Triggering event	18	—	8	—
Exploration	52	—	75	—
Integration	28	50	15	—
Resolution	1	50	2	100

Flow of Conversation

Both chats began with multiple social presence indicators as group members became reacquainted. Teaching presence indicators were in evidence at the beginning of each chat as the group organized its work and as the new moderator for the week became established. Approximately five minutes into the first chat, cognitive presence became apparent with an unsupported opinion reflecting the exploration phase (“A dominant culture should not impose its values on other cultures . . .”). In the second chat, cognitive presence began in the triggering event phase with a sense of puzzlement (“I was not sure what [the instructor] means by the public or private enterprise with regard to adult education”). Figure 1 shows the pattern of social, teaching, and cognitive presence for the second chat.

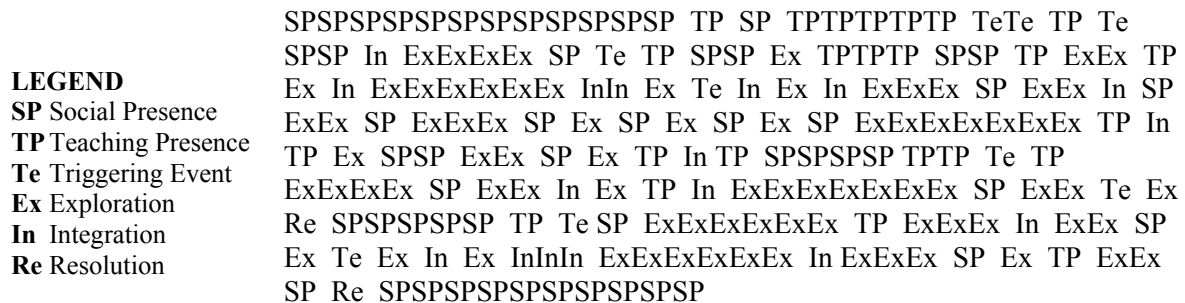


Figure 1. Flow of social, teaching, and cognitive presence in chat two. Cognitive presence is illustrated through the phases of the practical inquiry model.

When exhibiting cognitive presence during both chats, the group did not proceed in an orderly fashion through the practical inquiry model. In chat one, cognitive presence began with exploration, the second phase of practical inquiry. In chat two, cognitive presence began in the first phase of the practical inquiry model with a triggering event. Tentative hypotheses in the integration phase were not automatically accepted. Instead, hypotheses were routinely followed by exploratory statements or triggering events, indicating earlier phases of practical inquiry. Exploratory statements (e.g., “Skills that are pertinent only to the workplace are the responsibility [sic] of corporations/etc.”) were often followed by responses indicating social presence (e.g., “Jay, we may be saying the same thing.”) Resolution came near the end of the chats and was followed by indications of social presence.

Discussion

Shared understanding develops in a chat learning space through a dialogic process informed by experience and course readings. Individual meaning reflected in triggering events and exploratory statements is transformed through discussion into statements that integrate ideas and create and defend solutions. In the context of this course, collective understanding of an issue requires dialogue that helps group members understand various perspectives deeply. For that reason, it is expected that the majority of the cognitive presence indicators would be in the exploration phase. Indicators of integration and resolution should be relatively small during the chat.

These findings support Brookfield and Preskill’s (2005) assertion that discussion helps learners co-create knowledge, extends their integration skills, and cultivates collaborative learning. Collective or shared meaning comes about as the discussion moves through the higher-level indicators of cognitive presence. Garrison et al. (2000) acknowledge a connection, albeit not straightforward, between communication and higher-order learning. These findings show that communication leading to higher-order learning is not cyclical, as the phases of the practical inquiry model suggest. Rather, the majority of the responses move back and forth between exploration and integration.

Social presence supports the community of inquiry through affective and cohesive statements. In addition, social presence specifically supports the practical inquiry process through statements that express agreement and help move the group toward integration. Teaching presence helps keep the discussion organized and on track to resolution.

The findings suggest that chats are spaces that lead to shared understanding. In Web-based or Web-enhanced environments, the use of chat should be increased since it has the potential to increase shared meaning when used in the context of a community of inquiry.

References

- Anderson, T., Rourke, L., Archer, W., & Garrison, R. (2001). Assessing teaching presence in computer conferencing transcripts. *The Journal of Asynchronous Learning Networks*, 5(2). Retrieved December 15, 2005, from http://www.aln.org/publications/jaln/v5n2/v5n2_anderson
- Brookfield, S. D., & Preskill, S. (2005). *Discussion as a way of teaching: Tools and techniques for democratic classrooms*, 2nd ed. San Francisco, CA: Jossey-Bass.
- Garrison, R., Anderson, T., and Archer, W. (2000). Critical inquiry in a text-based environment:

- Computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87-105.
- Garrison, R., Anderson, T., and Archer, W. (2001). Critical thinking and computer conferencing: A model and tool to assess cognitive presence. *American Journal of Distance Education*, 15(1), 7-23.
- Hayes, A. F. (2005). An SPSS procedure for computing Krippendorff's alpha [Computer software]. Retrieved from <http://www.comm.ohio-state.edu/ahayes/macros.htm>
- Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*, 2nd ed. Beverly Hills, CA: Sage.
- Meyer, K. A. (2003). Face-to-face versus threaded discussions: The role of time and higher-order thinking. *Journal of Asynchronous Learning Networks*, 7(3). Retrieved June 16, 2006, from http://www.sloan-c.org/publications/jaln/v7n3/pdf/v7n3_meyer.pdf
- Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks, CA: Sage.
- Pawan, F., Paulus, T. M., Yalcin, S., & Chang, C-F. (2003). Online learning: Patterns of engagement and interaction among in-service teachers. *Language Learning & Technology*, 7(3), 118-140.
- Riffe, D., Lacy, S., & Fico, F. G. (2005). *Analyzing media messages: Using quantitative content analysis in research*, 2nd ed. Mahwah, NJ: Lawrence Erlbaum.
- Rourke, L., Anderson, T., Garrison, R., & Archer, W. (2001). Assessing social presence in computer conferencing. Retrieved June 16, 2006, from <http://communitiesofinquiry.com/documents/socialpresenceMay8.pdf>
- Strijbos, J., Martens, R. L., Prins, F. J., & Jochems, W. M. (2005). Content analysis: What are they talking about? *Computers & Education*, 46(2006), 29-48. Retrieved June 16, 2006, from <http://www.elsevier.com/locate/compedu>
- Vaughan, N., & Garrison, D. R. (2005). Creating cognitive presence in a blended faculty development community. *The Internet and Higher Education*, 8, 1-12.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

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