The Role of Teaching Presence in Satisfaction with Web-based Courses: Implications for HRD

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The purpose of this study was to investigate changes in satisfaction with Web-based course activities as a function of the degree of perceived teaching, cognitive, and social presence. Results indicated that the degree of perceived teaching presence led to greater satisfaction with course activities. Results suggest that communities of inquiry can be established within a formal educational or training context and that HRD practitioners should deliberately structure interaction among course participants in Web-based learning experiences.

Keywords: Web-Based Instruction, Community of Inquiry, Teaching Presence

For learning organizations to achieve their performance goals, HRD needs to help people do their work in different ways. In terms of a human performance system, HRD can foster a culture that values intellectual capital and design ways of sharing it so employees have the knowledge and skills they need to do their jobs. HRD can play a pivotal role in developing what Petrides (2004) calls a culture of inquiry that sets expectations for sharing information throughout the organization. This may involve instituting training and learning processes to promote and strengthen teamwork, online collaboration, and problem-solving to enhance employee knowledge and skills. Online communities facilitated by Web-based interactive technology are the tools of choice in many multinational organizations to manage these training and learning processes (Ardichvili, Page, & Wentling, 2002).

However, the effect of online technology on learning outcomes has not been well studied (Garrison, Anderson, & Archer, 2000). In addition, the implications of a conceptual framework that identifies the elements necessary for a successful online educational experience have not been adequately examined (Garrison et al.). Garrison et al. have developed a model that embeds worthwhile educational experiences within a community of inquiry. Participants learn through the interaction of three core elements: cognitive presence, social presence, and teaching presence.

This study contributes to the theoretical literature on Web-based course development and implementation by exploring the factors that contribute to a successful learning experience within a community of inquiry framework. The purpose of the study, from an HRD perspective, is to examine the role of teaching, cognitive, and social presence in participant satisfaction with Web-based course activities.

Theoretical Framework

This project is based in socioconstructivism, which recognizes social processes in individual knowledge building (Lave, 1991; Teasley & Rochelle, 1993). Learning theorists such as Dewey (1916) and Vygotsky (1978) assert that learning is fundamentally a social activity, and the collaborative construction of knowledge that occurs in the course under study is an example of a social activity in which learners negotiate and share meaning. Because the course involved is inquiry-based, the authors used a theoretical framework that is inquiry-based. The community of inquiry model explores learning processes within a framework that assumes learning occurs through the interaction of cognitive presence, social presence, and teaching presence (Garrison et al., 2000).

According to Garrison at al., cognitive presence involves the ability of learners to construct meaning through sustained communication; social presence is the ability of learners to project their personal characteristics to their group members and classmates; and teaching presence involves course design, discourse facilitation, and direct instruction in text-based computer conferencing environments (see Figure 1). For purposes of this study, a worthwhile educational experience is defined in terms of the learners' satisfaction with course activities.

Studies to date of the community of inquiry framework generally consider only particular elements and not the model as a whole (Garrison & Cleveland-Innes, 2005; McKlin, Harmon, Evans, & Jones, 2001; Vaughan & Garrison, 2005). Most analyze cognitive presence in online courses. Garrison, Anderson, and Archer (2001) defined cognitive presence in terms of four dimensions of critical thinking: initiation, exploration, integration, and resolution and observed it through written transcripts of online discussions. Meyer (2004) and Pawan, Paulus, Yalcin, and

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Chang (2003) also analyzed online discussion transcripts, found support for those dimensions of cognitive presence, and concluded that the way discussion questions were framed influenced the level of responses.

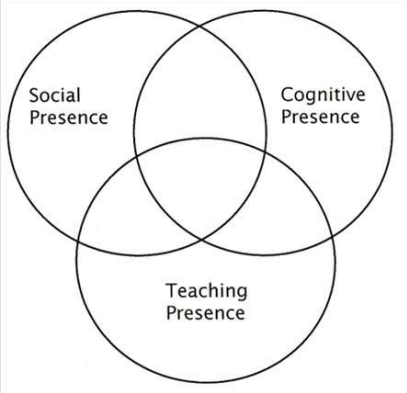

Figure 1.1. *Community of Inquiry Framework (Garrison, Anderson, & Archer, 2000).*

Social presence as defined in the community of inquiry model is characterized by emotional expression, open communication, and group cohesion (Garrison et al., 2000). Only a few studies have tested the construct as defined in the context of this model. Swan (2002) added two indicators of social presence—emotion and value—to those identified by Garrison et al. Stein & Wanstreet (2005) found that discussion groups with a high degree of social presence developed relationships that overshadowed their relationships with the rest of the class. They developed two measures of social presence in courses where learners worked collaboratively in small groups—one for group social presence and one for class social presence.

In a study of teaching presence, Shea, Pickett, and Pelz (2003) found that high levels of instructor presence were strongly correlated with satisfaction and reported learning.

Studies of the community of inquiry model as a whole seem to accept the premise that cognitive, social, and teaching presence are equally weighted in creating a worthwhile educational experience (Baron & Maier, 2004; Perry & Edwards, 2005). The present study questions that assumption.

Research Question

This study was designed to investigate the following research question: To what extent is variance in satisfaction with course activities explained by the degree of perceived teaching presence, degree of perceived cognitive presence, degree of perceived group social presence, and degree of perceived class social presence?

Method and Procedures

The convenience sample consisted of 44 adult learners from a population of 55 learners enrolled in two sections of a Web-enhanced course at a large Midwestern university. One section met winter quarter 2004, and the second section met winter quarter 2005. Both sections blended face-to-face and online delivery. Course content addressed philosophical and historical perspectives of adult education in American society. The course used a dialogical, constructivist approach in which learners made meaning by formulating ideas and refining them through the responses of others. Therefore, collaborative work was central to completion of the academic tasks.

Throughout the quarter, learners worked in small groups (of about five members) to complete course requirements. This included contributing to small-group discussion sessions related to issues presented in the course readings and participating in weekly online threaded discussions with other members of the class based on postings resulting from the small-group discussions.

The learners typically major in workforce development and education and are employed full time as corporate trainers or are preparing for careers in human resource development. They assessed their proficiency with computer-mediated communication (e.g., expertise with software and system commands, keyboard skills, etc.) as average to above average.

The data analysis sought to examine the effects of perceived teaching presence, perceived cognitive presence, perceived group social presence, and perceived class social presence on satisfaction with course activities. The

following variables were used to examine those relationships. All variables were measured on a 19-item end-of-course questionnaire (five-point Likert-type scale) developed by the researchers based on a review of the literature and similar scales. Content validity was established through a field test.

Dependent Variable

The dependent variable was satisfaction with course activities. It was measured by summing three items on an end-of-course questionnaire to create a satisfaction score (reliability coefficient = .74). The questions asked respondents to rate (1) satisfaction with their involvement in course activities, (2) satisfaction with the course structure (i.e., the activities, assignments, and instructor guidance), and (3) satisfaction with the conduct of the course.

Independent Variables

The degree of perceived teaching presence was a summated score composed of (1) the level of personal, meaningful dialogue with the instructor; (2) the adequacy of instructor feedback; (3) the degree to which the instructor encouraged dialogue, participation in course activities, and contact with others; and (4) the level of dialogue, sharing, and contact with others (reliability coefficient = .76).

Degree of perceived cognitive presence was measured by summing five items: (1) level of group dialogue, (2) level of sharing of ideas among course members, (3) perceived learning from the discussion group, (4) perceived learning from the whole-class discussion postings, and (5) perceived knowledge gained from the course (reliability coefficient = .72).

Social presence was divided into two variables—group presence and class presence—based on previous research that found that a high degree of social presence among members of small groups overshadowed the perceived social presence among members of the larger class (Stein & Wanstreet, 2005). Degree of perceived group social presence was a summated score composed of (1) the ability to convey personality to others in the small group, (2) the ability to convey feelings and emotions to others in the group, and (3) the immediacy of responses to messages by others in the group (reliability coefficient = .90).

The degree of perceived class social presence was measured by summing three items: (1) the ability to convey personality to others in the class, (2) the ability to convey feelings and emotions to others in the class, and (3) the immediacy of responses to postings by others in the class (reliability coefficient = .71).

Data Analysis

Data analysis was performed using the Statistical Package for the Social Sciences for Windows ([SPSS] ver. 13.0). Frequencies, descriptive statistics, and histograms were run to examine the distribution of the data. Visual inspection revealed no problems with normality, and there were no outliers.

Data were analyzed using correlation and regression analysis. The variables were entered in two hierarchical steps based on previous research (Stein, Wanstreet, Calvin, Overtoom, & Wheaton, 2005). In step 1, perceived teaching presence was entered. In step 2, perceived cognitive presence, perceived class social presence, and perceived group social presence were entered simultaneously. The level of significance used for analysis was .05.

Results

On the end-of-course questionnaire, the mean item score on the satisfaction with course activities subscale was 3.2 on a five-point scale. Thus, on average, learners were satisfied with the course activities.

The mean item score on the degree of perceived teaching presence subscale was 3.1 on a five-point scale. On average, learners felt the degree of teaching presence was adequate. With a mean item score on the degree of perceived cognitive presence subscale of 3.7 on a five-point scale, learners felt the degree of cognitive presence was more than adequate. Learners felt the degree of group social presence was highly adequate (mean item score = 4.5; five-point scale), although they felt the degree of class social presence was somewhat inadequate (mean item score = 2.6; five-point scale).

The correlations between the independent variables (perceived teaching presence, perceived cognitive presence, perceived group social presence, and perceived class social presence) and the dependent variable (satisfaction with course activities) are reported in Table 1 and show that the dependent variable was significantly correlated with perceived teaching presence ($r = .778$, $p < .01$, $n = 44$) and perceived cognitive presence ($r = .529$, $p < .01$, $n = 44$).

Two correlations among the independent variables were statistically significant: perceived teaching presence and perceived cognitive presence ($r = .507$, $p < .01$, $n = 44$); and perceived group social presence and perceived cognitive presence ($r = .422$, $p < .01$, $n = 44$). The extent of collinearity was examined as part of the regression analysis and is discussed in the following section.

Table 1. *Correlations of Perceived Presence Variables and Satisfaction with Course Activities (n = 44)*

	Intercorrelations						
Variables	X_1	X_2	X_3	X_4	*Y*	*Mean*	*SD*
Perceived teaching presence (X_1)	1.0	.507*	-.196	-.008	.778*	12.45	3.57
Perceived cognitive presence (X_2)		1.0	.422*	.080	.529*	18.23	2.69
Perceived group social presence (X_3)			1.0	-.257	-.085	13.61	2.10
Perceived class social presence (X_4)				1.0	-.186	7.93	2.03
Satisfaction with course activities (Y)					1.0	9.70	2.46

*Significant at the .01 level

Because the number of cases (44) was well above the minimum of five cases for each of the four independent variables (Hair, Anderson, Tatham, & Black, 1998), we proceeded with regression analysis. Findings from the multiple regression analysis are summarized in Tables 2 and 3.

In the first step of the analysis, perceived degree of teaching presence was entered, based on its role in previous research (Stein et al., 2005). The model accounted for 60% (R^2 = .60) of the unique variance, which was significant at the .01 level.

Table 2. *Results of Multiple Regression Analysis (Model Summary)*

Model	*R*	R^2	*Adjusted* R^2	*SE*	R^2 *Change*	*F Change*	*d.f.1*	*d.f.2*	*Sig. F Change*
1[a]	.778	.605	.595	1.57		64.27	1	42	.001
2[b]	.827	.684	.651	1.46	.079	3.23	3	30	.032

[a]Model 1. Predictors: (dependent variable: satisfaction with course activities) perceived teaching presence.
[b]Model 2. Predictors: (dependent variable: satisfaction with course activities) perceived cognitive presence, perceived group social presence, perceived class social presence.

In the second step, perceived cognitive presence, perceived group social presence, and perceived class social presence were added as a group. They increased the R^2 by 8% (R^2 change = .08). The resulting partial correlation between perceived cognitive presence and the dependent variable is .357 ($p < .01$, $n = 44$) and accounts for 13% of the unexplained variance in satisfaction with course activities. The overall multiple regression equation, including all independent variables, explained 68% of the variance in satisfaction with course activities and was significant [$F(4,21.06) < .001$].

Because of moderately positive intercorrelations, the extent of collinearity was assessed for perceived teaching presence, perceived cognitive presence, and perceived group social presence. The variance inflation factor (VIF) value was 2.02 for perceived teaching presence, 2.46 for perceived cognitive presence, and 2.03 for perceived group social presence, well below the value of 10 that would indicate a problem with collinearity (Hair et al., 1998).

Discussion

The Community of Inquiry model was useful in exploring the effect of teaching presence, cognitive presence, and social presence in supporting a worthwhile educational experience (Garrison et al., 2000). The regression analysis in this study showed that, in the full model, perceived teaching presence and perceived cognitive presence were related to satisfaction with course activities, and the nature of the relationship was positive. Therefore, the greater the degree of perceived teaching and cognitive presence, the more satisfied learners were with course activities.

Table 3. *Results of Multiple Regression Analysis (Coefficients)*

Model	*b*	*SE*	*B*	*t-value*	*p*	*Partial Correlation*
1[a]						
(Constant)	3.011	.868		3.471	.001	
Perceived teaching presence	.537	.067	.778	8.017	.000	.778
2[b]						
(Constant)	4.527	2.260		2.004	.052	
Perceived teaching presence	.393	.088	.569	4.445	.000	.580
Perceived cognitive presence	.309	.129	.338	2.386	.022	.357
Perceived class social presence	-.309	.121	-.254	-2.558	.015	-.379
Perceived group social presence	-.213	.150	-.182	-1.417	.165	-.221

Note: Dependent variable: satisfaction with course activities.
[a]Hierarchical entry (R^2 = .605). [b]Simultaneous entry (R^2 = .684).

This finding supports Garrison et al.'s assertion that teaching presence (i.e., course design, direct instruction, and discourse facilitation) and cognitive presence (i.e., meaning-making through sustained communication) are significant elements of a Web-based experience for communities of learners. It also supports Swan's (2001) finding of three factors that contribute to learner satisfaction and perceived learning: clear design, instructor interaction, and dynamic discussion.

This research runs counter to the assertion that cognitive presence is the element most basic to a worthwhile learning experience (Garrison et al.). In this study, teaching presence was most critical. The findings support Shea et al. (2003), who report that high levels of instructor presence were strongly correlated with satisfaction and reported learning.

Regarding social presence, the perceived social presence of the class as a whole was negatively related to satisfaction with course activities. Therefore, the greater the degree of perceived social presence among members of the class, the less satisfied learners were with course activities. This unexpected finding may relate to the nature of the interactions planned as part of the course structure. Pawan et al. (2003) found that unless they had explicit guidance from the instructor regarding class discussions, learners engaged primarily in one-way interactions in which they presented their positions rather than take up a line of inquiry offered by their peers. Such one-way interaction was not conducive to critical, reflective dialogue. Stein and Wanstreet (2005) reported that interactions with the class were perceived as perfunctory and not meaningful in a course that involved negotiating meaning in small-group discussions and subsequently reporting to the class as a whole. These results suggest that non-meaningful social learning activities involving the whole class may detract from satisfaction with the course.

There was a moderate correlation between perceived social presence among group members and perceived cognitive presence (r = .422, p < .01, n = 44). This supports Garrison et al.'s (2000) contention that social presence has a positive relationship with cognitive presence and may facilitate cognitive presence in communities of inquiry. However, in the full model, the perceived group social presence had no significant effect on satisfaction with course activities.

How This Research Contributes to Knowledge in HRD

This study supports the notion that a worthwhile educational experience in terms of satisfaction with course activities can be embedded within a community of inquiry (Garrison et al., 2000). The findings also support the central role of teaching presence—course design, discourse facilitation, and direct instruction—in satisfaction with Web-based course activities.

Two findings have implications for HRD professionals involved in Web-based training and learning within their organizations. First, practitioners should be aware that Web-based learning experiences need to be deliberately structured to promote interaction—including learner-instructor dialogue and learner-learner interaction—in support of teaching presence, cognitive presence, and social presence among course participants. This may include initiating and focusing discussion topics, sharing personal meaning, exchanging information, helping learners connect ideas,

and encouraging collaboration and open communication (Garrison et al., 2000). Second, course designers can be less concerned about facilitating social presence among small-group members because the effect of those interactions on satisfaction with the course activities is not significant.

Learning in community—often referred to as communities of practice—is becoming a popular way to manage knowledge in organizations (Ardichvili et al., 2002). Communities of practice are not formal structures, such as training departments or project teams. Rather, they are informal entities that exist in the minds of their members and are held together by the connections members have with one another and by their specific shared problems or areas of interest (Stuedemann, Wentling, & Wanstreet, 2005). By comparison, communities of inquiry, as this study shows, can be established within a formal educational or training context that acknowledges the importance of direct instruction, course design, and discourse facilitation performed primarily by an instructor or trainer. This teaching presence plays a central role in fostering a worthwhile educational experience in terms of satisfaction with the course activities.

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