SOCIAL PRESENCE AND CRITICAL THINKING FOR ONLINE LEARNING


Note
This paper is a preliminary report of a series of research projects in Social presence. The data collections and analysis are still in progress. More comprehensive results will be presented in forthcoming publications.

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INTRODUCTION

Social presence and critical thinking are factors necessary to increase the level of interaction in an online learning environment. “No interaction, no learning” (Gunawardena, 1995). Interaction is based on communication and the foundation of social presence and critical thinking is communication. The purpose of this study is to determine if there is a relationship between social presence and critical thinking and to examine that relation if it exists. Further, if there is a relationship between these two elements it will be examined in online learning environments to elaborate how social presence influences critical thinking and how they conjointly increase online interaction.

The results reported here are preliminary based on literature review because social presence normally takes a prolonged time to foster. To generate meaningful data a long term study is necessary. In fact, this preliminary data is the first stage of a series of studies of social presence and critical thinking in online learning environments. Collection and analysis of data will continue until valid results can be assured.

IMPORTANCE OF SOCIAL PRESENCE & CRITICAL THINKING

Social presence exerts significant influence upon improving instructional effectiveness; and, therefore, is of utmost importance to enhance learning in online learning communities. Hackman and Walker (1990) investigated the effects of system design and social presence, as teacher immediacy behavior, on perceived student learning and satisfaction in the televised classroom. They concluded that system design and teacher immediacy behavior strongly impact student learning and satisfaction. Gunawardena and Zittle (1997) report similar findings in a CMC system. Social presence was a strong predictor of satisfaction within the CMC environment. Also, it is considered
to be an element of interpersonal communication in an online learning environment. Perse, Burton, Kovner, Lears, & Sen (1992) studied utilization of e-mail, and concluded that students used CMC more because they felt that e-mail conveyed more interpersonal presence.

Critical thinking is a most desirable skill in the online learning process. Assisting a student in learning to think critically and become a self-directed learner is a central role for faculty (Simich-Dudgeon, 1998): 'Critical thinking is both a skill which can be taught and an outcome of the learning process itself.' Students learn this skill by actively engaging in the learning process with others. Lauzon (1992) contended that, the challenge for online educators is to “search out means of reducing structure and increasing dialogue so that learners may move from being simply recipients of knowledge to actively embracing and working with objective knowledge to make it their own” (p. 34). Learners passively assimilate knowledge rather than critically examining it and constructing it, based on their experiences and previous knowledge (Burge, 1988; Garrison, 1993; Lauzon, 1992). Several factors impact students’ abilities to use critical thinking skills in their contributions to discussions (Bullen, 1998): cognitive maturity, the instructor’s style of teaching, the students’ experience with a dialogical style of teaching, and their understanding of critical thinking.

Social Presence

Social presence is defined as the degree of awareness of another person in an interaction and the consequent appreciation of an interpersonal relationship (Short et al., 1976; Rice, 1993; Walther, 1992; Walther & Burgoon, 1992). Biocca (1997) argued that
social presence is more complicated than just awareness; after an extensive study he declared that, “the minimum level of social presence occurs when users feel that a form, behavior, or sensory experience indicates the presence of another intelligence.” “The amount of social presence is the degree to which a user feels access to the intelligence, intentions, and sensory impressions of another.” Factors that contribute to an appreciable degree of social presence are facial expression, direction of gaze, posture, dress, non-verbal cues, and verbal cues.

Tu (2000b) defined three dimensions that determine the level of social presence, social context, online communication, and interactivity. Social context is constructed from the CMC user’s characteristics and their perception of the CMC environment. Online communication consists of the attributes of the language used online and the applications of online language. Interactivity includes the activities in which CMC users engage and the communication styles they use. Social presence is the degree of feeling, perception and reaction of being connected on CMC to another intellectual entity through a text-based encounter. It is clear that the three dimensions of social presence correspond with Biocca’s (1997) definition of social presence, form (Intelligence), behavior (Intentions), and sensory. Biocca’s definition is applicable to types of communication environments, conventional conversation, virtual reality, etc. The new definition of social presence is more appropriate for the CMC environment, especially when CMC is a learning environment.
Social Context

Social context is constructed from the CMC users’ characteristics and their perception of the CMC environment. The factors contributing to this dimension are: CMC as a social form, CMC as an informal and casual way to communicate, CMC as personal, and CMC as a sensitive means of communication, the recipients, social relationships, access/location, and perceptions on media, etc.

Online Communication

Online communication refers to the attributes, application, and perception of the language used online. Online communication contains variables that describe CMC as stimulating, expressive, conveying feelings and emotions, meaningful, easily understood keyboarding skills, expressiveness, characteristics of discussion, and language skills, etc.

Interactivity

Interactivity is the cooperative activities in which CMC users engaged and the communication styles used by CMC users. This dimension included CMC as pleasant, immediate, responsive, and comfortable with familiar topics, CMC response time, communication styles/skills, and the size of discussion groups, etc.

Critical Thinking

Critical thinking is defined as thinking that is reasonable and reflective and focused on what to believe or to do (Norris & Ennis, 1989). Four categories (Clarification, Assessing, Making and judging inferences evidence, and Using appropriate strategies and tactics) of critical thinking skills can be identified based on
Norris and Ennis (1989) and Ennis (1987) definition and model of critical thinking, as well as the work of Quellmalz (1987).

Some critics believe online learning’s inability to reproduce a critical dialogue among students and between students and instructor can be addressed through the use of two-way communication technologies. Appropriately designed computer conferencing will facilitate interaction among students and between the instructor and students, thus making online learning more appropriate for the higher-level cognitive goals education (Harasim, Hiltz, Teles, & Turoff, 1995; Lauzon, 1992; Tuckey, 1993).

Henri (1992) identifies two types of messages: independent and interactive. Independent messages deal with the topic of discussion, but make no implicit or explicit reference to any other messages. Interactive messages deal with the topic, but also refer to other messages by responding to them, elaborating on them, or building on them in some fashion.

FACTORS IMPACTING CRITICAL THINKING

Bullen (1998) examined the factors that positively and negatively impact learners’ critical thinking in an online learning community. The factors that most frequently and consistently affect participation and critical thinking in online discussions are: (a) attributes of technologies, (b) course design and facilitation, (c) students’ situation characteristics, (d) dispositional characteristics, and (e) students’ understanding of critical thinking and the purpose of the online activity.
Attributes of Technologies

The attributes of technologies have both positive and negative impacts on students’ critical thinking skills. The attributes include time-independence, text-based communication, CMC, and many-to-many communication. For students, time-independence is a double-edged sword in that it facilitates their participation and critical thinking but exacerbates their difficulty in managing their time effectively. Generally, the time-independent attribute is the ability to be reflective and to compose thoughtful rather than spontaneous responses (Edelson, 1998; Whitworth, 1998; Black, 1998; Seagren & Watwood, 1997), and the democratizing effect that prevented discussions from being dominated by a few articulate or verbose speakers (Seagren & Watwood, 1997). On the negative side, however, there is a sense that the inherent delays in asynchronous communication militate against the development of a dynamic and interactive online discussion. Therefore, it left students feeling remote, detached, and isolated, and this discouraged them from participating (Sproull & Kiesler, 1991; Connolly et al., 1990; Hiltz et al., 1986; Saunders & Heyl, 1988) and thinking.

The text-based attributes impact students’ critical thinking. Text-based communications create a sense of detachment and a feeling of anonymity, but in this case it is brought about by the lack of visual and auditory cues and the reliance on textual communication (Hill, 1997). Students may feel no connection with their peers and thus felt no compulsion to go beyond the minimum participation required to generate critical thinking. For some students it has a liberating effect, allowing them to compose their
contributions, reread them, and possibly revise them before posting, thus facilitating a more reflective and critical approach.

One attribute of CMC is the random access to a permanent record of conference discussions (Misanchuk et al., 1997; Edelson, 1998; Kaye, 1987). This feature may be viewed positively as enhancing participation by allowing students to read selectively and reread and review when necessary. Conversely, it may also have served to discourage more active participation because they were able access all the information they felt they needed by reading other contributions. A negative manifestation of the permanent record experienced by some students is information overload. As the course progressed the record gets longer and the ability to deal with it became more of a problem for these students (Edelson, 1998), particularly those who did not have the self-discipline to participate regularly. The public nature of the permanent record (Tu, 2000a) may also have an inhibiting effect on participation.

Although the ability to engage in many-to-many communication is viewed positively by students and may have affected the quality of student participation, it is not clear if it had any facilitating or inhibiting effects. Students do not indicate they participated more because of this aspect or that they found it easier or felt more motivated to participate. Rather, it was seen as having a positive impact on the type and quality of participation.
Course Design and Facilitation

Mandatory participation may have unintended side effects. For some students the marks associated with mandatory participation does not necessarily result in more participation. Other students respond to the marks for participation, but not necessarily with enthusiasm (Bullen, 1998). This explains that often what they had to say was not particularly original or insightful, but that they want to get the marks.

The needs for social activities (Tu, 2000b), pacing, and the instructor’s participation are other themes related to course design. Some students said that social activities would allow them to get to know each other before they begin the discussions (Tu, 2000b). Social cohesion is a prerequisite to meaningful discussions of the course content before students feel free to exercise critical thinking.

Students’ Situational Characteristics

The student’s learning environment is a crucial factor for success because it plays a much larger role for students in online learning than it does for students in traditional classrooms. Time available for study and participation is also an issue for most students.

Dispositional Characteristics

Learning style preferences (Tu & Corry, 2001) and personality may result in a greater degree of comfort in the online environment almost immediately, whereas others struggle with it and in some cases never accept it. Shy or introverted students may find the online environment liberating because it allows them time to contribute, free from the competition of more verbally adept students (Hawisher & Moran, 1993; Tu, in press).
Another learning style-related issue that emerged is a preference or need for more teacher direction. Some students find the idea of the virtual classroom was too abstract and required too much self-directed cognitive engagement (McIsaac & Gunawardena, 1996). Time and place-independence become unmanageable responsibilities rather than features that facilitated access and participation. Some students may feel they are not prepared for the self-discipline that is generally required in an online learning environment.

In a constructive learning environment, teachers are seen as learners. Therefore, instructors are as important as the other learners. The instructor’s approach to, and his perceptions of, his role in organizing and moderating the discussions may also have had an impact on student participation and critical thinking. To promote and encourage student participation, the instructor has to ensure that she or he does not become the center of attention, the authority that students look to for the “correct” answers and for approval (Harasim et al., 1995; Mason, 1998). Tagg and Dickinson (1995) argue that student participation is enhanced if they feel the continuous presence of the instructor (instructor’s social presence). They suggest this can be achieved through the use of messages of encouragement that are frequent and prompt, offer guidance, and address individuals rather than the group.

Students’ Comprehension of Critical Thinking and the Purpose of the Online Activity

In general the students may have an incomplete understanding of the concept of critical thinking and their impression does not conform to the definition used by the
instructor. Related to the students’ understanding of critical thinking are their perceptions of the purpose of the online activity and what they are expected to do online.

RESEARCH QUESTIONS

1. Are there relationships between social presence and critical thinking in an online learning environment?
2. If yes, what are these relationships?

METHODOLOGY

Qualitative methods were used to understand the students’ perception of social presence and online critical thinking skills.

Qualitative Method

Participant observation method was used to understand the issues of social presence and critical thinking online learning environment. Fifty-one students enrolled in three complete online graduate level courses, were the subjects. E-mail, and bulletin board were used for class communication and discussions. Students were required to make at least two contributions in a week throughout the 15-week semester. The data were collected through these online communications and discussions for document analysis. Document analysis included all messages delivered on bulletin board discussion messages and outside e-mail received by the instructors during the semester.

DATA ANALYSIS

Qualitative data analyses were begun within a critical thinking framework (Bullen, 1998) and a social presence framework (Tu, & McIsaac, 2002). Critical thinking is defined in this study as "reasonable and reflective thinking that is focused upon deciding what to do or believe" (Norris & Ennis, 1989, p. 1), and "a set of integrated
Data were reviewed and coded for positive and negative indicators of critical thinking skills based on Ennis’s (1987) four critical thinking skills, Elementary/advanced clarification; Basic support (assessing evidence); Inference (making and judging); and Strategies and tactics.

After indicators were coded, students were sorted into one of three categories of critical thinking and assigned a corresponding score. The three categories and the corresponding scores were:

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<thead>
<tr>
<th>Category</th>
<th>Score</th>
<th>Descriptions</th>
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<tbody>
<tr>
<td>High</td>
<td>3</td>
<td>Extensive use of critical thinking skills, minimal use of uncritical thinking.</td>
</tr>
<tr>
<td>Medium</td>
<td>2</td>
<td>Moderate use of critical thinking skills, some uncritical thinking.</td>
</tr>
<tr>
<td>Low</td>
<td>1</td>
<td>Minimal use of critical thinking skills, frequent use of uncritical thinking.</td>
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Five factors (attributes of technologies, course design and facilitation, students’ situation characteristics, dispositional characteristics, and students’ understanding of critical thinking and the purpose of the online activity) of critical thinking identified in Bullen’s study (1998) were applied for data analysis. Three factors (social context, online communication, and interactivity) of social presence identified in Tu and McIsaac’s study (2002) were applied to analyze online social presence.
RESULTS

RELATIONS OF SOCIAL PRESENCE AND CRITICAL THINKING

The relations between social presence and critical thinking are very clearly identified in this study. Interaction is fundamental to the explanation of this relationship. The relations can be drawn in the Table 1.

Table 1: The relations of social presence and critical thinking.

<table>
<thead>
<tr>
<th>Critical Thinking (Bullen, 1998)</th>
<th>Social Presence (Tu, 2000)</th>
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<tr>
<td>Attributes of Technologies</td>
<td>Online Communication</td>
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<td>Course Design and Facilitation</td>
<td>Interactivity</td>
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<td>Students’ Situational Characteristics</td>
<td>Social Context</td>
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<tr>
<td>Dispositional Characteristics</td>
<td>Social Context</td>
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<tr>
<td>Students’ Understandings of Critical Thinking and the Purpose of the Online Activity</td>
<td>Social Context</td>
</tr>
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</table>

Interaction is the key to the relationship between social presence and critical thinking in the online learning environment. Evidently, social presence has the capability to advance online critical thinking. Social presence is a fundamental element to online interaction since it is grounded in aspects of social learning and online self. In other words, an individual exists online because of their ability to think, not because of their physically manipulated social expression. Three dimensions of social presence (Tu, 2000) capture a more comprehensive picture of online interaction and critical thinking. Therefore, when one intends to promote critical thinking in an online learning environment they must begin by fostering a learning environment with a higher level of social presence. Critical thinking requires cognitive and environmental determinants, and social presence is required to enhance and foster online social interaction, which is the major vehicle of critical thinking.
CONCLUSIONS

This preliminary data report is one of a series of studies in social presence and critical thinking in the online learning environment. This study demonstrates a relationship between social presence and critical thinking. In fact, Tu and McIsaac’s three social presence factors coordinate with Bullen’s (1998) five critical thinking facilitators.

Online participation has to be seen by students as something integral to their success in the course. If it is viewed as busy work done only to receive marks for participation it is unlikely that meaningful discussions will result.

Critical thinking in instruction relies critically upon social presence. Interaction is fundamental to the explanation of how social presence affects critical thinking. Social presence, being a dynamic variable, makes critical thinking more complicated and offers a means for its scrutiny. This discussion is exploratory in purpose. Whether one examines CMC as a learning environment or is applying student learning and critical thinking to the CMC environment, social presence must be reduced to its elements, social context, online communication and interactivity, to be effectively applied, or examined.

Future studies should examine the correlations between social presence and critical thinking; and examine whether social presence is a predictor of critical thinking in the online learning environment.

REFERENCES


Bullen, M. (1998). Participation and Critical Thinking in Online University Distance Education. Journal of Distance Education, 13(2).


