Synchronous and Asynchronous Discussion: What Are the Differences in Student Participation?

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Abstract

The purpose of the study was to examine how students (n = 14) participated in a web-based graduate course discussions. The focus of this examination was to analyze the interactions that occurred during synchronous (chat) and asynchronous (listserv) modes of discussions using a coding scheme developed by the researchers. During a one week period, students were randomly assigned to either a small group chat or threaded discussion. The next week, the two small groups switched forms of discussion and were given another topic question to discuss. The study is qualitative in nature in order to find out whether of the students' participation were substantive (that is, directly related to the topic) or non-substantive (messages were not directly related to the content) in both types of discussions and these were compared by type of comment and quantified. In addition, the students were surveyed about their computer and Internet experience and skills as well as their attitudes toward the course content, its organization and delivery. Results indicated that overall students' discussions included all 8 types of substantive and non-substantive. However, the participants when in the chat showed greater numbers of responding and reacting statements (substantive types) in both weeks than when participating in the threaded discussion. Based on the survey results, some students found it difficult to follow the dialogue in the chat, but overall they enjoy this type of interaction. The students also enjoyed the threaded discussion, especially for its convenience.

Introduction

Although various forms of Distance Education have been in existence for a long time, the advent of the Internet and the World Wide Web (WWW) has brought changes to teaching and learning at the university level. A number of universities and colleges are adding or converting traditional courses and programs to web-based instruction (WBI) or online learning environments. These WBI courses require not only a different design and delivery of the instruction, but also a different form of engagement on the part of students with the course materials, other students, and the instructor. These learning environments require not only active, but interactive participation (Davidson-Shivers & Rasmussen, 1998 & 1999). Interactive learning includes an interchange of ideas with all participants; that is, the students and instructor exchange ideas in a flexible and dynamic environment (Rasmussen & Northrup, 1999).

This interchange of ideas may occur through a synchronous mode, which occurs at the same time but from different locations, or through an asynchronous mode, in that students and the instructor communicate to each other at differing times. The computer-mediated communication (CMC) literature documents the dynamics of online discussions by various forms of communication patterns, processes, and purposes (William & Merideth, 1996; Piburn & Middleton, 1998; Wojahn; 1994; Jeong, 1996; McCormick & McCormick, 1992; McConnell, 1997 Sherry, 1999; Hara, Bonk, & Angel (in press)). The CMC literature and the literature on Web-based instruction (WBI) identifies various online delivery formats (e-mail, listserv, chats, conferences, etc.) and how they might be used for discussions (Khan, 1997; Shotsberger, 1997; Driscoll, 1998). Developers of online learning environments often suggest that asynchronous communication may have advantages over synchronous.

For instance, Driscoll states that asynchronous methods allow students more time for reflection than do synchronous delivery formats; with one example shows only 20% of a web-based course to be in the synchronous format. In addition, Jeong argues that "most [not all] findings hail the use of asynchronous communication" but this author also "notes the absence of the evaluation of synchronous communication and their effects" (p. 51). His own findings suggest that synchronous online chats have an advantage of promoting highly interactive discussions with a disadvantage for the group to digress from the topic to another (p.62). However, there are mixed results based on the CMC research and there is a lack of evaluation on synchronous discussion, it seemed viable to compare and contrast how students participate in both types of discussions.

Methods

Subjects

Participants in the study were graduate students (n = 14) in a required course for their degree programs of study from a southeastern regional university in the USA. Approximately two-thirds of the students were female. Based on the survey results, the majority of students reported that they had computer experience with some having less experience with the Internet and WWW. Participation in the discussions was a course requirement. Confidentiality of information was maintained by having surveys collected and coded by someone other than the instructor and the analysis of the discussions occurred after final grades were posted.

Course content, organization, and requirements.

The course was an introductory course on trends and issues in instructional design. The course was organized by weekly topics with assignments and questions being posted to its website. Two or three questions were given with directions on how to post (either chat or threaded discussion) answers and replies. Students had a week to respond to any listserv question(s) and were also required to reply at least twice to other students' responses during the week. Typically one question was scheduled for an hour and a half chat during the week. Chats were either large group (whole class) or small groups (half of the class per chat session). Students were also assigned particular readings as preparation for discussing the weekly topic. They were also encouraged to draw on their own experiences, knowledge and skills. Both threaded discussion and chat could be copied and all of the chats were distributed to all members of the class. After the fifth week of the term, students were assigned as discussion leaders to facilitate the weekly discussions in both chats and threaded discussions with guidance from the instructor. The instructor participated directly in the online chats; however, less so when another student was the discussion leader. With the threaded discussions, she added her comments to a summary at the end of the week rather than commenting during the week.

Procedures

The following procedures occurred for gathering the data.

- Using a Likert-type questionnaire, students were surveyed three times during the term in order to evaluate students' reactions and attitudes toward the course. The survey also gathered information about the computer experiences and skills. Data was kept confidential by having someone other than the course instructor collect and code each set of questionnaires.
- For one question posted during the thirteenth and fourteenth week of the term, the students were randomly assigned to two groups. Half the students discussed the question (it was the third question posted for each week) using the online chat and the remaining students used the threaded discussion. The process was repeated the following week with a new topic and question, and the two groups switched discussion modes.
- Transcripts of the discussions for those two weeks were then coded using a coding scheme developed by the researchers based on the work of Piburn and Middleton (1998) and Williams and Meredith (1996). See Table 1 for the coding scheme. The coding and analyses of the discussions did not occur until after the final course grades were posted.
- The researchers were trained to use the coding scheme and then coded each discussion transcript independently. The transcripts were coded by each completed statement/thought made rather than

using a line-by-line method. Complete sentences, incomplete sentences, and short phrases were considered as a statement if a new or different thought was presented within them. Incomplete sentences or short phrases were often used within the chat due to the speed and interactive nature of this format.

C The researchers met together to reach agreement on each line coded. If any discrepancies were encountered their codings, the three researchers discussed the statement and then came to consensus. At that time, the researchers added another code type, supportive statements; it became number 9.

Table 1
Types of Discussion Participation Coding Scheme

SUBSTANTIVE: messages that relate to the discussion content or topic.

Code

1. Structuring – Statements which initiate a discussion and focus attention on the topic of the discussion. These statements are often made by the discussion leader or instructor (i.e. "Today we are going to discuss . . ." or "This week's discussion will focus on . . .").

2. Soliciting—Any content-related question, command or request which attempts to solicit a response or draw attention to something (i.e. "What do you think the author meant by . . .?" or "Give us some support for that assertion.").

3. Responding—A statement in direct response to a solicitation (i.e. answers to questions, commands, or requests). Generally these are the first response to a question by a given individual.

4. Reacting—A reaction to either a structuring statement, to another person's comments, but not a direct response to the question. (i.e. "Your earlier statement got me to thinking about . . ." or "I agree/disagree with Bob because . . .").

NONSUBSTANTIVE: messages that do not relate to the discussion topic or content.

5. Procedural—Scheduling information, announcements, logistics, listserv membership procedures, etc.

6. Technical—Computer-related questions, content, suggestions of how to do something, not related to the topic directly.

7. Chatting—Personal statements, jokes, introductions, greetings, etc.

8. Uncodable—Statements that consist of too little information or unreadable to be coded meaningfully.

9. Supportive—Statements that although similar to chatting, there is an underlying positive reinforcement to the comment! (i.e. "Good idea!" or "Excellent work!"). *Note:* This type was added when the researchers met for consensus of their coding of the transcripts.

Source: Davidson-Shivers, Muilenberg, & Tanner, 1999. Adapted from Piburn & Middleton (1998) and Williams & Meredith (1996).

Data Sources

Survey

Data were gathered by a questionnaire distributed three times to the group. The survey asked students to report their capabilities using technology, web-based technology in particular, experience with the discipline, and other demographic data. They were also asked to critique the course as it progressed through the term in

terms of technical difficulties, interest in topics, preferences to types of activities, instructional strategies used, and amount of work that this course in this format involved.

Coded Transcripts

Two threaded discussions and two chats were coded for types of participation that students made during online discussion. The coding scheme used two main categories of substantive, messages that related directly to the content or topic at hand and non-substantive, messages that did not relate to the discussion topic or content. The 4 subcategories for substantive were structuring, soliciting, responding, and reacting; the 5 subcategories for non-substantive were procedural, technical, chatting, supportive statements, and uncodable. Every statement or sentence was coded using one of these 9 subcategories. (See above Table 1.)

Discussion of Results

The analysis showed that participants' comments were made in all substantive and non-substantive categories in the chats and the listservs, except that there were no uncodable (albeit, unreadable by the researchers) in the threaded discussions and several in the chat transcripts. In addition, whether in a chat or threaded discussion for either week, students overall provided more substantive statements either by responding to a question or reacting to another's statements or comments than any of the other seven categories. By mere observation of the length of the responses by participants in a threaded discussion, it would seem that they would contain more substantive remarks than those in a chat discussion, especially since statements in the chat tended to be shorter in length and were often interrupted by others' comments. However, the chat discussions showed greater numbers of *responding* and *reacting* statements in both weeks over the substantive statements made in the threaded discussions. There were also greater amounts of non-substantive statements in the categories of chatting and supportive comments during the chats than in the threaded discussions. Overall there were a greater number of interchanges and interaction when participating in a chat than when involved in the threaded discussions. Thus, it appears that for these two weeks of a given course, the chat discussions were dynamic with a lot of interactive and interchanges among the participants.

The supportive data suggests that students liked both modes of delivery every time they were surveyed. In their comments, they stated that the chat discussions were sometimes difficult to follow, but still enjoyed them. One student commented that they liked small group chats over large group ones. They enjoyed the convenience of the threaded discussion.

When reporting their computer experience level, most stated that they had experience using computers, although some stated that they had little experience using the Internet and WWW. It was noted that with the second survey, the reported level of computer experience was lowered slightly. But it returned to the same level as reported in the first by the end of the course (and in the third survey). The reported 'dip' in computer experience may be due, in part, to technical difficulties of online services. And once these were overcome, students may have regained their confidence in their computer abilities.

The importance in this study is *not* so much as to determine 'what group won", but rather to determine which form of discussion is preferred and which is most appropriate for the types of actions and interactions that students need to perform in order to be successful in such a learning community. It is also important to realize that these graduate students, for different reasons, enjoyed both forms of discussion. The use of chats provided a direct and interactive environment in which they reacted and responded to the topic at hand, chitchatted, and made supportive comments to each other. It involved a high degree of interchange and was a dynamic environment, although sometimes difficult for some students' to follow the train(s) of thought. In contrast, threaded discussions provide an opportunity for students to provide reflective, thoughtful responses to posed questions, judging by the length and wording of any given single response. They were also able to provide insightful reactions to others' opinions and ideas presented perhaps because a threaded discussion's timeframe (of a week) allowed for that. Students enjoyed the chat because of the convenience factor. Both discussion modes—synchronous and asynchronous—have merit and may be used within online courses. They clearly can be used for different purposes and provide different, but useful, means for students to engage in learning. It is suggested that additional research into the use of chats and threaded discussions be conducted.

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