Building Online Learning Communities: Factors Supporting Collaborative Knowledge-Building

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Introduction

Online learning has the potential to change the dynamics of traditional classroom interactions. Rather than the instructor solely establishing the conditions for learning, the learner has the opportunity through listservs, chat rooms, and threaded discussions to influence the social, emotional, and instructional environment (Burch, 2001; Jones & Martinez, 2001). This influence can be used to create learning communities. A key factor in creating and maintaining an online learning community is interaction with both the social and content dimensions of the course (Palloff & Pratt, 1999; Grubb & Hines, 2000; Carabajal, LaPointe, & Gunawardena, 2003).

Moore’s theory of transactional distance provides a framework for analyzing the development of online communities and satisfaction with knowledge gained during the learning experience. Moore’s theory describes the transaction of education as being comprised of dialogue and structure, the levels of which vary from course to course (Moore & Kearsley, 1996). Dialogue is a particular type of interaction that advances learning, while structure reflects the flexibility of the course design in accommodating individual learners’ needs (Moore, 1993; Moore, 1991).

The overall purpose of this project was to examine whether interaction, structure or amount of distance among participants affected learners’ perceptions of their learning in face-to-face, Web-enhanced, or Web-based courses. Additionally, the project examined whether learners’ interactions led to the development of learning communities, and whether the process of building communities was different in face-to-face and Web-based courses. These aspects were investigated through both quantitative and qualitative methods. The quantitative methods included logistic regression or chi square tests of independence, and their accompanying correlations, while the qualitative methods used in-depth interviews and focus groups.

Research Questions

Following Moore’s theory of transactional distance, this project examined whether interaction, structure, or amount of distance among participants affected learners’ perceptions of their learning in face-to-face, Web-enhanced, or Web-based courses. Additionally, the project examined whether learners’ interactions led to the development of learning communities, and whether the process of building communities was different in face-to-face and Web-based courses.
The questions asked include: (1) Do structure, interaction, degree of distance, or characteristics of the learner affect learning in a distance environment? (2) In what way is learning orientation related to degrees of distance or educational philosophy? (3) How do learners create, maintain, and use a learning community to foster individual and collective learning?

Methods

This mixed methods study included 201 undergraduate and graduate students in nine intact classes at three Ohio universities. Courses were of different length, content, and percentage of online versus face-to-face interaction. With the exception of one course, students had no choice as to the format of the course. Four instruments were administered to collect the quantitative data. They were: (a) Satisfaction Questionnaire, (b) Demographics Questionnaire, (c) Learning Orientation Questionnaire (Martinez, 1996), and (d) the Philosophy of Adult Education Inventory (Zinn, 1983). Both the satisfaction and demographics questionnaires were researcher developed. Participants in the quantitative portion of the study consisted of anonymous volunteers from the courses. Consequently, the number of responses to any given survey varied from a low of 69 (response rate of 34.3%) on the satisfaction survey, to a high of 154 (76.6% responding) on the Learning Orientation Questionnaire (LOQ). The Philosophy of Adult Education Inventory had a slightly lower response rate (142; 70.6%), as did the demographic survey (133; 66.1%).

The quantitative analyses were supported by qualitative analyses, which consisted of open coding of comments from 29 learners who volunteered to participate in individual or focus group interviews. Qualitative data were collected through individual or focus group interviews following a semi-structured format. Questions were developed and asked, with interviewers asking additional questions for clarification of responses or when new topics were introduced by the interviewees. Interviews were analyzed using a theory-driven open coding guide developed for this project (Boyatzis, 1998). Coding of the interview transcripts identified nine themes: (a) dialogue, (b) structure, (c) distance, (d) learning, (e) participation, (f) barriers, (g) community, (h) communication, and (i) reasons to enroll/not enroll in online courses. The results were used to link the quantitative and qualitative results in the following ways:

1. The themes of dialog, participation, and communication were then used to connect the quantitative data on interaction.
2. The theme of structure was used to verify the quantitative data on course structure.
3. The themes of distance and barriers were used to explain the lack of statistical significance found in the amount of distance and use of technology.

All data for the study were collected between September 2001 and June 2002.

Results

In examining research question 1 (Do structure, interaction, degree of distance, characteristics of the learner, or the expectations of instructors affect learning in a distance environment?) logistic regression with forward stepwise entry was employed. Structure was found to be highly related to satisfaction with knowledge gained. Interaction was also related, although less so than structure. None of the other variables were statistically significant. See Table 1. Focus group and interview comments from the learners support the quantitative findings with the exception of distance. With regard to distance, where learners did not feel the social presence of the instructor or other learners, learning was negatively impacted.

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Table 1

<table>
<thead>
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<th></th>
<th>B</th>
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<th>df</th>
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<td>.000</td>
</tr>
</tbody>
</table>

Correlations examined to answer research question 2 (In what way is learning orientation related to degrees of distance or educational philosophy?) were not statistically significant (Cramer’s V = .15 for learning orientation and .18 for educational philosophy). The qualitative data again supported this finding as learners reported reasons for choosing level of distance that had nothing to do with their learning orientation or educational philosophy.

Research question 3 (How do learners create, maintain, and use a learning community to foster individual and collective learning?) was answered through the qualitative data collected. Learners provided both a definition of community and a description of how these communities developed and were used to aid in their learning. In general, the definition of learning community included shared learning goals, a free flow of ideas, and help solving problems from all members of the community. An element of interpersonal connection or trust also seemed to be important in attaining a feeling of community. Problems with communication seemed to contribute to a lack of community building in courses where learners did not feel that community developed. The learning communities that developed played an important role both in students’ learning and in lessening their feelings of distance from each other. Becoming a member of a learning community provided a sense of social presence. Learners seemed to feel this way across all levels of distance.

**Conclusion and Implications for Further Research**

This study began with the hypothesis that, given a choice, learning orientation and educational philosophy would make distance education courses more attractive to some students than to others. In addition, the study hypothesized that structure and the amount of interaction would be related to student satisfaction with the amount of knowledge gained in a course. The first hypothesis was not supported for at least two reasons. First, except for one course, students were not given a choice in how much of the course was online. Thus, almost all students in this study were taking courses with at least some distance component, regardless of learning orientation or educational philosophy. Second, regardless of learning orientation or educational philosophy, most students are flexible and appear to have eventually adapted well to the online environment.

The second hypothesis was supported by the study’s results. That is, structure and adequate interaction do lead to greater learning, and it is structure that is the most important. Why interaction was less important than structure to learning may be related to the more limited experiences of both faculty and students with online instruction. On the one hand, faculty (both in general and in this study) typically have more experience designing courses (i.e., creating structure) than at facilitating interaction in the newer, online environment. On the other hand, the students remarked in the interviews that they had some technical and organizational difficulties in the distance environment. Online assignments are more demanding of the student because they must be opened, read, and then (sometimes) responded to. These steps are more time intensive than listening and commenting in class and require at least some technical skill to accomplish.

Combining the logistic regression results with the interviews and focus group comments supports the
proposition that student experience with online interaction was more varied and that some students had difficulty adapting to the new environment. These difficulties would account for the smaller effect of interaction on knowledge gained.

In summary, the results of the quantitative tests indicate that neither learning orientation, educational philosophy, nor whether the course was taught online or face-to-face is related to the amount of knowledge a student gained. What does emerge, however, is that the structure of the course and the quality of interaction is highly related to self-reported student satisfaction with learning.

Perhaps not surprisingly, the results of this study support the conclusion that students enroll in Web-based courses because it is convenient or because the course is only taught in one format and they have no choice. Learning orientation and educational philosophy have little to do with the decision, possibly because students may be only vaguely aware of their orientation and philosophy. It should be noted that a number of students indicated that they would prefer to take courses face-to-face, rather than via the Web. These students said they struggled with learning online and did not enjoy it as much as when they are able to personally meet the instructor and the other students. Conversely, some of these same learners indicated that they were very satisfied with their learning at the end of the course, notwithstanding the difficulties they encountered. In both the focus group discussions and the interviews, students reported that the reasons they enrolled in online courses were related to their motivation to complete a specific academic program in a way that accommodated their schedule; in other words, it was convenience, not learning orientation or educational philosophy, that affected their decision.

Finally, the importance of structure to student satisfaction with learning reaffirms the need for instructors to develop clear objectives and activities. The finding that courses should be well designed with a close link between objectives and activities will be of little surprise to most readers. What does come from this study, however, is that well-designed courses can be of benefit to all students, regardless of their learning orientation, educational philosophy, or whether the course is presented face-to-face or online.

Educators can use the results of this study when designing or modifying courses. Instructors teaching online courses should be prepared to offer help to students working through the problems of communicating online. Specifically, educators should be clear about what is expected of the student (i.e., provide structure) and give support to the student, both technically and through encouragement, to ensure that the student’s experience is optimal and that student interaction with both the professor and with other learners is facilitated. This study suggests that these activities will result in the greatest perceived learning by the students.

This study offers important preliminary findings regarding the development and maintenance of online learning communities. Further research is needed to determine the levels of structure required to assist learners of various abilities, especially technical abilities. In addition, additional ways to facilitate interaction online need to be found if online communities are to be created and fostered. Finally, what types of interaction best assist learners and what factors interfere with online community building and maintenance deserve to be further explored. Building on this study, future researchers should endeavor to expand and elaborate on these results.

References


**Biographical Sketches**

**Joe Wheaton**, Associate Professor, has presented at 12 national conferences since 1999, including three presentations at the Annual Conference on Distance Teaching and Education, three more at the American Counseling Association, and six at various national rehabilitation counseling conferences.

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