Interactivity/Community Process Model for the Online Education Environment

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Abstract

According to this mixed methods study, interactions with the content, peers, and instructor are important as students become active, engaged learners. Results show that students in 30 online classes at four Midwestern post-secondary institutions believe that interactivity was significant to building community, $r = 0.61$, $p<.01$. A Pearson correlation was also computed for sense of community correlated to learner engagement and found to be statistically significant, $r=0.557$, $p<.01$. A model of the process for creating engaged learners was developed based on the findings. Because active participation is critical to student success and quality of online education, developing these feelings of belonging or sense of community that will lead to learner engagement are key components in the online education environment. The relationship of interactivity and sense of community, which leads to engagement, is really a process with the student, the course, and the instructor all interacting in ways that will promote feelings of belonging and community.

Keywords: Engagement, Engaged, Interaction, Distance, Sense of community, Social learning, Blended Learning, Communication, Interactivity model

Beginning with Moore (1989), descriptions of the various interactions that take place between students, instructor, and content are well-documented. Models have even been displayed showing the interaction, but this researcher found no models that looked at the process beginning with a student at the start of the class, the creating of interactive opportunities for engagement, developing a sense of community, and then becoming an engaged learner. Brown (2001) explored the concept of community in depth and examined the process of building community; however, interactivity and the role it plays was not mentioned in her process model.

This paper examines the role of interactivity in the online environment using a mixed methods study. The purpose of the study was to determine if the interactivity of an online class was significant to the building of community leading to a more engaged learner. Community is a feeling of belonging, acceptance, and trust for the instructor and other class members (Rovai, 2002). Interaction is communication between the learner and the content, the learner and instructor, and the learner with other learners (Moore & Kearsley, 2005).

Literature Review

As the number of distance education classes continues to grow in the twenty-first century, both at the K-12 and post secondary levels (Allen & Seaman, 2008; Picciano & Seaman, 2009), the need to facilitate student interactions with content, the instructor, and peers that will lead to quality instruction is important. While most administrators agree the number one reason for the growth of online education is flexibility,

many also agree that economic concerns may play a role (Allen & Seaman, 2008). Workers who are currently unemployed or working at a temporary job may want to improve their skills or learn new skills. In addition online classes may be a cost savings during an economic recession. Taking an online class may be less expensive than driving a distance to an educational institution saving not only driving time but also fuel costs.

Social Nature of Learning

Whatever the reason for the growth of online teaching and learning, a body of research exists pointing to learning as a social endeavor. Researchers like Dewey (1938) and Lave and Wenger (1991) along with others in this century and the previous century have looked at the social nature of learning and the strategies that lead to a positive social learning environment (Gentry, Rizza, Peters, and Hu, 2005). If the social nature of learning is as important as the wide body of research, then instructors teaching in the online environment should be leaders in developing online classes that meet the social needs of the students.

This social nature of learning in the online environment could be supported through interaction with content, instructor, and peers. According to Guffey (2008), communication is a process where the sender has an idea, encodes it as a message, and sends it over a channel (face-to-face, e-mail, telephone, or other methods of transmitting). This message is then decoded by the recipient. This interactive process allows for feedback from the recipient to the sender after the message is received. The Theory of Communicative Action refers to this communication process as it involves messages being transmitted that impact actions and relationships. Habermas (1984) refers to the concept of Communicative Action as the "interaction of at least two subjects capable of speech and action who establish interpersonal relationships" (Te'eni, 2001). Miller (1972) states a message is transmitted to a receiver(s) with the "intent to affect the latter's behavior" (Te'eni, 2001).

Through this communication process, students within a class interact with peers and the instructors. Their messages provide opportunities for social interaction and relationship development that become critical to building a sense of community and engagement in the online class. Focusing on this need for a social learning environment, instructors have been studying the development of a sense of community (belonging and trust) through interactivity that may lead to an engaged learner.

Chickering and Gamson (1987) identified seven principles of good practice for higher education learning environments (Shea, Fredericksen, Pickett, & Pelz, 2004). According to Shea, et al., these practices could be encouraged in any learning environment with adaptations to the online environment. In fact four of these principles directly relate to the social nature of learning—contact between student and faculty, prompt feedback, cooperation among students, and active learning expectations—and could be adapted to the online environment.

Wasley (2006) summarized the findings from the National Survey of Student Engagement. She found that online distance education students who engaged in academically challenging activities reported that they had rewarding educational experiences while interacting with both instructors and classmates.

According to Baird and Fisher (2003), the one accomplishment of all the media available for social networking is that these distance learners are "active participants as they construct a *learning landscape* rooted in social interaction, knowledge exchange, and optimum cognitive development with their peers" (p. 24). Online learning environments offer a wide range of technologies to facilitate the opportunities for social interaction. The students, however, will need to take advantage of the opportunities in order to be engaged by participating in asynchronous discussions, instant messaging, teamwork, and other opportunities for interaction with the instructor, classmates, and course content.

Student Engagement

Interactivity and community-building are two major areas found in distance education literature; however, one might ask if these concepts contribute to student engagement. Research on student engagement suggests that the opportunities for communicative action and interactivity with the other students, the instructor, and the content created by the instructor may lead to an active engaged learner (Handelsman, Briggs, Sullivan, and Towler, 2005). However, will social relationships formed with peers through interaction also enhance a sense of community that will then add to the learner's increased active engagement?

This researcher was interested in the relationship between the student's perception of community— feelings of trust and acceptance—and the student's perception of the level of interactivity—amount of

communication with other class members and the instructor—in the class. By identifying and analyzing the relationship between interactivity of the class and student's sense of community, future online instructors may be able to improve student interaction, which may lead to increased feelings of belonging and trust and, more importantly, to increased engagement and student learning.

Student engagement refers to the time students devote to "learning-beneficial behaviors" for the class including interacting with the instructor, other students, and personally with the content (Chen, Lattuca, & Hamilton, 2008, 339). According to Chen, et al, "student engagement is a function of faculty engagement" and that faculty members do influence student engagement.

Handelsman, Briggs, Sullivan, and Towler (2005) reviewed the literature on student engagement and found agreement that "engaged students are good learners," noting that interactions were an important part of the experience (p. 184). Their study suggested that participation/interaction was a significant predictor of final examination grades. While the Handelsman, et al. study focused on traditional classes, Robinson and Hullinger's study (2008) focused on online students who "reported higher levels of engagement than both freshmen and senior on-campus students. . ." (p. 102). Students reported exemplary interaction with faculty receiving feedback and discussion related to assignments. Students also reported that they collaborated with other students, and 65 percent indicated their ability to work with others improved (Robinson & Hullinger, p. 105).

Although Ullah and Wilson's study (2007) was not with online students, they concluded that student involvement with learning, asking questions, and contributing to discussion positively influenced academic achievement. In their study (n=2,160), the regression analysis produced a t score, t=40.81 (p<0.001), for quality of relationship with peers; a t score, t=4.66 (p<0.001), for quality of relationship with faculty; and a t score, t=3.55 (p<0.001), for contributed to class discussion. This study does highlight the need to build connections for all students because student engagement is important.

Leese (2009) encouraged students to work together in teams in a virtual learning environment to complete out-of-class activities. In her study (n=37) of blended learning, she found that students needed a support network; however, the students did take responsibility for their own learning. During the focus groups, students commented that, while working with diverse groups was difficult, this skill would be needed when they entered the workforce. The students also commented that technology issues did impact the work.

Discussion

Significance of the Interactivity/Community Process Model

The Interactivity/Community Process Model shown in Figure 1, which was developed by this researcher, shows the proposed relationship of interactivity and sense of community with students moving from the just being enrolled in the class to the learner who is actively engaged in the online class. The model also shows factors that might impact the interactive qualities of the class, factors that are well-documented in the literature covering sense of community and interactivity.

A variety of factors can affect the interactivity that occurs within a class. These factors can be attributed to the student, the instructor, or the course. The student who enrolls in the class brings a variety of traits that do affect participation in a class. For example, students who do not speak up during a face-to-face class may be more comfortable responding to discussion board topics because they have time to formulate answers (Palloff & Pratt, 2003). Course factors may also influence the level of class interactivity. Classes with specific skills, such as accounting or finance, may not be able to provide as much discussion and sense of community as classes that are more theory-based, such as management or literature.

Just as students and course material are unique, instructors are individuals bringing a distinctive style of teaching developed throughout their teaching careers. Factors such as technology savvy, online experience, pedagogical techniques, and motivation may also be reflected in the amount and type of interactivity that is part of the class design (Palloff & Pratt, 1999; Arbaugh & Benbunan-Fich, 2005; Fjermestad, Hiltz, & Zhang, 2005; Moore & Kearsley, 2005).

The interactivity component is important in an online class because it is what connects the students, instructor, and course material together. Many instructors and researchers have emphasized the value of interaction. Moore (1989) was one of the first to propose three types of interaction: (a) learner-content interaction, (b) learner-instructor interaction, and (c) learner-learner interaction. Four of the seven guides for quality undergraduate education published by Chickering and Gamson (1987) deal with interaction

between the students, the instructor, and the content as detailed in the Anderson and Garrison interactivity model (Anderson, 2003):

1. Encourages contact between students and faculty.
2. Develops reciprocity and cooperation among students.
3. Encourages active learning.
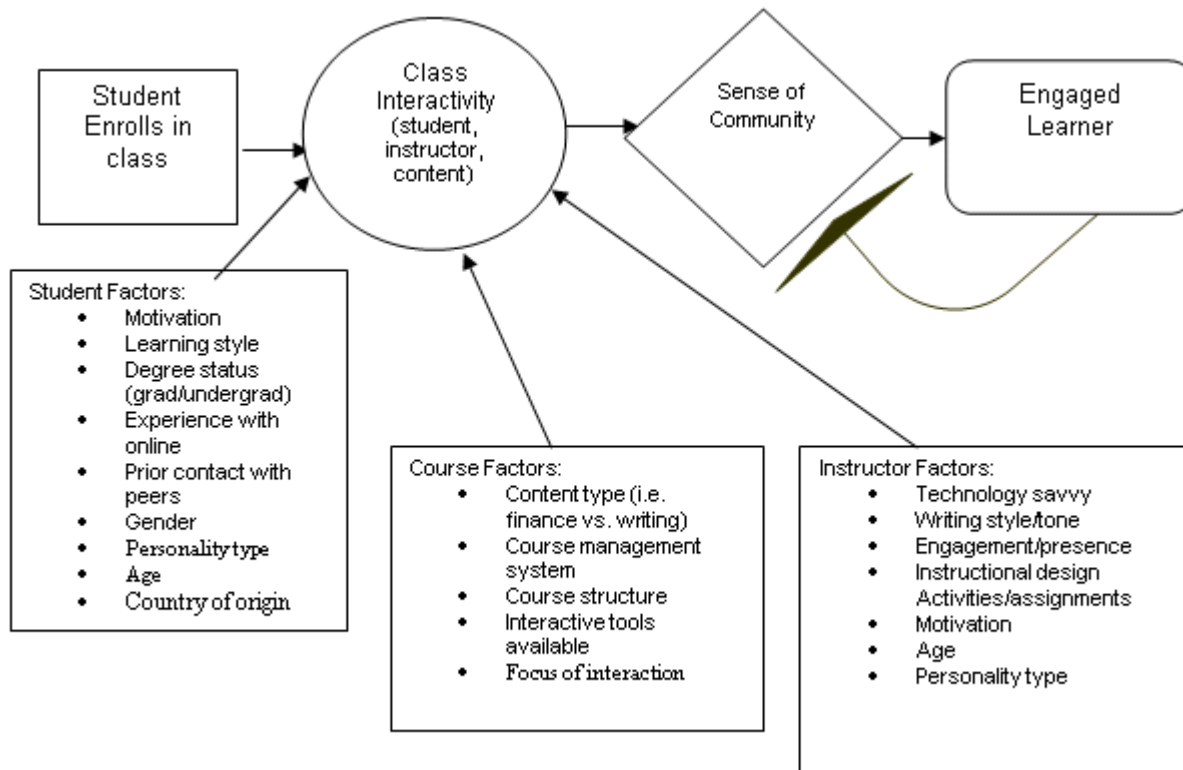4. Gives prompt feedback.

Figure 1. Distance education online environment interactivity/community process model.

Method

The process does not stop with interactivity, however. This mixed methods research study (n=241) suggested that interactivity does aid students in the development of sense of community. Students from 30 classes located in four Midwestern post-secondary institutions were surveyed about their perceptions of interactivity and community building in their online classes. The survey was based on Roblyer's interactivity rubric (Roblyer & Wiencke, 2004) and Rovai's (2002) questionnaire, Classroom Community Score (CCS).

A Pearson correlation was computed to investigate the relationship between the community score (CCS) measuring a student's perceived sense of community and the student's perceived rating of the interactive qualities of the class. After the quantitative survey was completed and scored, 42 students, representing the 21 highest and 21 lowest community scores of those students who volunteered for the interview, were contacted for a 10-minute interview. The purpose of the interviews was to assist in explaining the findings of the quantitative survey and to add richness to the research.

Results

The interactivity score for the participants (n=241) was calculated based on Robyler's five Interactivity Elements (IE): Social/Rapport-building Designs for Interaction, Instructional Designs for Interaction, Interactivity of Technology Resources, Evidence of Learner Engagement, and Evidence of Instructor Engagement. Four elements are instructor-related, and one element is related to student engagement. The Pearson correlation for the CCS scores and the interactivity score was r=0.61, p<.01. A significant correlation did exist between the student's perceived interactivity of the class and the student's perceived sense of community. Table 1 displays these four correlation coefficients and shows they were significantly different from zero (p<.05).

Table 1. *Instructor-related Interactivity Elements IE 1, 2, 3, and 5 Correlated to Community Score*

	IE1	IE2	IE3	IE5	CCS Total
IE1	1	.459**	.144	.383**	.405**
IE2		1	.234**	.390**	.457**
IE3			1	.350**	.242**
IE5				1	.418**
CCS Total					1

** p<.01 level (2-tailed)

The last element in the model, however, is student engagement. How does sense of community relate to student engagement? A Pearson correlation was computed to measure the relationship between the CCS score measuring a student's perceived sense of community and the student's perceived rating of learner engagement (IE4). The Pearson correlation was computed and found to be r=0.557, p<0.01. A significant correlation existed between the student's perception of sense of community and learner engagement.

Participants were asked during the quantitative survey if they would volunteer for a 10-minute interview. The selected students (n = 42) were contacted by telephone and interviewed. Of the students contacted, 74 percent perceived that feeling a sense of community/belonging did contribute to their learning and that the instructor was at the center of the development of community.

Comments from the students led to the additional arrow that completed the cycle of engagement leading back to sense of community. For example, Sally felt a strong sense of community and felt her instructor did an excellent job of presenting the material. "When the instructor leads, guides, and sets the precedent/expectations, the class will follow. The sense of community makes the discussions easier and more open."

Lyna, who felt very isolated in her class, said she had viewed another student's online class. "They have really active, thought-provoking discussions, and the instructor would weigh in with, 'you know I look at it this way, what do you think' and a whole new thread was sparked."

Conclusion

With the number of distance learning courses and students enrolled in these courses continuing to increase, instructors will be looking for ways to improve the online educational experience for students enrolled in the class. For students to be active, engaged learners, they need to develop a sense of community through interaction with their courses, their peers, and their instructors. Through this interaction, which leads to feelings of belonging, the students become more engaged, which heightens their sense of community and improves engagement even more.

Kearsley (2000) pointed out that, through design and learning activities, instructors ensure interactivity and participation. As learners participate in the interactive activities, the increased level of exchanges may then lead to an even greater sense of community, and increased engagement as represented by the circular arrow. This increasing engagement may impact student learning.

Research should continue to refine this model. Student factors ranging from motivation and learning style to personality and country of origin make each class unique and influence the ways students respond to the design of the class. By understanding the process, instructors may be able to improve the quality of a class offered in the distance online environment.

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