

SENSE OF COMMUNITY IN ONLINE COURSES

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The rapid growth in online courses continues to spark faculty concern about the quality of instruction related to the lack of interaction, social process, and social presence thought to promote socialization of students into a profession. Courses designed to promote a sense of community in online courses may address these concerns. The purpose of this study was to measure a sense of community in online classes at a western, land-grant university. Students taking online classes using the eCollege Web platform completed the Classroom Community Scale developed by Rovai (2002b) to measure a sense of community. Student interviews validated the scale.

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Distance learning has expanded rapidly in the last decade, primarily because of the growth of online courses. The rapid growth of online classes fosters concerns about quality of instruction as well as student learning. According to the National Center for Educational Statistics (NCES) between 1995 and 1998, the number of distance courses in general doubled, and online courses alone increased from 20% to 60% (NCES, 2000). According to a more recent survey the trend continued as online course offerings increased from 1.98 to 2.34 million in 2004, a rate 10 times faster than projected by the NCES (Allen & Seaman, 2004). A follow-up survey revealed that 65% of

schools that offer graduate courses on-campus also offer graduate courses online indicating this delivery method has entered the mainstream of higher education (Allen & Seaman 2005).

The rapid growth in online courses and programs causes considerable concern for educators about the quality of the distance learning experience (Carstens & Worsfold, 2000). Even though these concerns may be to be dwindling, 40% of academic leaders still report their faculties fail to embrace online teaching (Allen & Seaman, 2003). Faculties have voiced concerns about several aspects of the quality of online learning. Some feel that higher education and administration sold out to pressures outside the university. Others tend to believe students can only be

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The Quarterly Review of Distance Education, Volume 7(3), 2006, pp. 285–296
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ISSN 1528-3518
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socialized through face-to-face (F2F) contact with instructors in the traditional classroom setting and question the quality of online learning (Diekelmann & Schulte, 2000; Mallow & Gilje, 1999; Nesler, Hanner, Melburg, & McGowan, 2001). Even though many faculties have resisted the movement to teach courses online, others have obviously embraced teaching in the online environment, considering the number of courses offered. The increase in online courses and programs has prompted faculty who teach online to question some old—and perhaps false—assumptions held about teaching and learning in general (Cartwright, 2000).

Students voice similar concerns about the quality of the online learning experience. Lack of F2F contact with faculty and peers, and feelings of isolation in “cyberspace” may cause students to question, at least initially, the quality of learning in an entirely online environment (Wimbish, 2001). In addition, isolation and feelings of being disconnected may contribute to negative learning outcomes, such as a lower retention rate, as reported in the distance education literature (Rovai & Whighting, 2005). Regardless of concerns, students choose online courses because the classes are flexible, convenient, and accessible (Greenberg, Vojir, & Whitney, 2000).

Learning Community

By far, most experts believe in the need to design online classes that promote interaction, social process, and social presence to promote a community of learners online (Charalambos, Michalinos, & Chamberlain, 2004; Falvo & Solloway, 2004; Harasim, Hiltz, Teles, & Tur-off, 1996; Palloff & Pratt, 1999). Initially the learning community movement gained momentum on college campuses in an effort to promote the retention of on-campus freshman students (Calderwood, 2000; Shapiro & Levine, 1999). The same motivation exists for distance educators who believe in building learning communities online to help so stu-

dents will feel connected, persist in their educational efforts, and experience quality learning experiences. Students who feel connected and part of an online community may be more satisfied and tend to complete their online courses and programs (Kowch & Schwier, 1997; Palloff & Pratt, 1999; Rovai & Wighting, 2005).

A learning community is defined as a group of students who have a sense of belonging; that is, they feel they matter to each other, possess shared expectations, and are committed to shared, educational goals (Rovai, 2002a, 2002b). Courses designed to maximize the social aspects of learning can promote community online. Interaction, participation, and social learning experiences are key factors in promoting connection and lessening isolation among students. Social constructivism is one approach to design that can help students feel connected as they construct knowledge together (Aragon, 2003; Gunawardena & Zittle, 1997; Smith & Ragan, 2005; Wilson, Cordry, & King, 2004). By creating an environment in which learning involves the discussion of values, beliefs, and goals, students may feel more connected and part of a discipline.

Courses designed using social constructivism to promote community may also lead to the socialization of students into the various disciplines. Students learn values, beliefs, culture, and knowledge when it is shared, constructed, and transmitted within the learning community in much the same way professional learn in communities of practice at work (Jamieson, 2004; Wenger & Snyder, 2000). Similar to the *community of practice* concept, social constructivist design provides for a situated learning environment in which newcomers to the practice can learn to solve typical practice problems, allowing students to learn through interactive participation (Jamieson, 2004; Wenger & Snyder, 2000.) Furthermore, designing courses in which students solve typical problems facing communities of practice may help to socialize the student into the discipline.

Online Course Design

In order to promote interaction and, therefore, community in the online course environment, design must utilize technology to simultaneously promote interaction and knowledge construction (Harasim, 1990; Rovai, 2002a.). The emergence of online technology for computer-mediated-communication (CMC) facilitates interaction, collaboration, and social presence, and therefore can decrease the isolation feared by some students. Through CMC, students can benefit from interaction with many other students in class and with the instructor, even though they are not in F2F contact (Anderson & Elloumi, 2004; Harasim, Hiltz, Teles, & Turoff, 1996; Saba & Shearer, 1994). Still, this more complex way of interacting and learning online requires Web pedagogies appropriate to the online environment and must be developed through research.

Research in Online Pedagogy

Experts in online teaching and learning offer many recommendations about best practices and standards for quality design of online courses, but sufficient research has not adequately explored the best pedagogy for this delivery method (Keegan, 1986; Palloff & Pratt, 1999; Perraton, 2000; Twigg, 2001a, 2001b; WICHE, 2002a, 2002b). Many of the studies conducted in the past focused primarily on comparing learning outcomes between traditional campus courses and distance courses (Phipps & Merisotis, 1999). While a majority of these studies have reported no significant difference in outcomes between the two learning environments, other researchers question those results (Brennan, McFadden, & Law, 2001; Russell, 2001, 2002). In the face of this apparent stalemate, a movement toward a different research agenda occurred. This agenda calls for research specific to the delivery method rather than continued research comparing

outcomes between different delivery methods (Falvo & Solloway, 2004; Harper, Hedberg, & Bennett, 2000; Phipps & Merisotis, 1999; Saba, 2000). Experts in the field currently favor research that will study learners, learning, and student issues related specifically to online instruction to ensure quality education for students (Passi & Mishra, 2004). Therefore, the purpose of this study was to measure a sense of community in online classes at a western university in order to address concerns about poor quality, lack of student success, and student satisfaction in online classes.

Methodology

Design

A nonexperimental descriptive multimethod research design was used to determine a sense of community in online courses using the eCollege Web platform. Multimethod research provides the opportunity to generate relevant, in-depth, refined knowledge about student perceptions of learning in this environment (Passi & Mishra, 2004; Polit & Beck, 2004).

Participants

A convenience sample of students taking online classes one fall semester at a western, land grant university were asked to complete a Web survey about their perceptions of online learning. The university offered a total of 48 online courses during the fall semester: 11 graduate and 37 undergraduate courses. The courses came from a wide variety of departments and disciplines from within the university (see Table 1). Of the 37 undergraduate courses offered, 11 were lower level courses and 26 were upper level courses. Of the 820 eligible students, 227 students completed and submitted the survey, resulting in a response rate of 27.7%.

TABLE 1
Online Courses

<i>Undergraduate</i>	<i>Graduate</i>
American Government	Curriculum and Evaluation
Business Ethics	Intro Research Manage
Business Org. and Government	Community Health Nurses
College Skills	New Age of Discovery
Community Health	Pharmacology Primary Care
Consumer of Research	Research in Advanced Nursing
Drugs and Behavior	Practice
Entrepreneurship	Rural Cultures
Family as Client	Technology & Society
Family Decision Making	The Adult Learner
Health Assessment	The Adult Learner
Health Promotion	Theory in Advanced Nursing
Horticultural Science	
Integrating Computer Tech. in Ed.	
Intro. Money and Banking	
Issues in Multicultural Education	
Leader	
Legal Environment of Business	
Native American Tradition Arts	

Setting

Students who completed courses completely online were invited to participate in the survey. The courses represent either courses offered by a department or course offered as part of a degree. Students lived both within and outside the state. Courses were offered using the eCollege e-learning Web platform that offers discussion forums, real-time chats, and has the capability for students to be assigned to groups. Discussions can be viewed by date, author, group, and/or topic. Once groups are assigned, separate presentation folders, discussion forums, chat rooms, and e-mail lists are available for the group and for the whole class. The platform is easy to navigate and students have 24-7 technical support.

Instrumentation

The researcher used the Classroom Community Scale (CCS) developed by Rovai (2002b) to measure sense of community. In order to describe the sample, additional demo-

graphic questions were also included in the survey. The CCS is a 20-item Likert-type scale that provides a total score for "classroom community" and two subscores that measure "connectedness" and "learning" (Rovai, 2002a, 2002b). Rovai first established validity by asking experts to rate 40 items for the scale using a four-point Likert-type scale. Each item was rated on a scale from "totally not relevant" to "totally relevant." Any item not scored as totally relevant was deleted. The final instrument had 10 items related to feelings of connectedness and 10 items related to perceptions of learning and satisfaction. Participants in Rovai's study scored 20 items that reflected their feelings on a five-point Likert-type scale from strongly agree to strongly disagree. Rovai tested the instrument with 378 students enrolled in 28 online graduate courses using the Blackboard e-learning Web platform. The full scale was found to be reliable, with a Cronbach's alpha of 0.93. The subscales, connected and learning, were also found to be reliable with Cronbach's alphas of 0.92 and .91, respectively. Factor analysis revealed that the two factors in the scale (connectedness and

learning) accounted for over 50% of the variance.

Procedures

The request for participation in the study was sent via e-mail from within the eCollege survey tool to all students who took online courses at this university during the previous fall semester. The director of the university's outreach school sent the initial e-mail invitation to students enrolled in online courses, inviting them to participate in a research study. He assured students their participation was voluntary and their responses would be kept confidential. The e-mail also assured students the outreach school and university Institutional Review Board approved the study. The e-mail invitation contained a hyperlink that took students directly to the survey hosted by the eCollege server. When the students reached the survey site, the survey opened automatically because of the login information embedded in the hyperlink within the original e-mail message. Students indicated informed consent by checking a required box at the beginning of the survey.

Students enrolled in more than one course received only one e-mail request and were allowed to complete only one survey. Students were asked to think of one class as they completed the survey. Once students submitted the survey, their data were automatically entered into an Excel database. No personal information about the participants was added to the database. The survey was available to students for 1 month at the beginning of the spring semester. The eCollege survey tool stored non-responder e-mail addresses in a database used to deliver reminder e-mail requests. Two reminder e-mails were sent at 2-week intervals. Some students may not have received the request if they changed their e-mail, stopped attending the university, or had this type of request blocked as spam by their e-mail provider.

At the end of the survey, students were asked to participate in an interview to discuss

the learning environment in their course. They were asked to include their name and contact information if they were willing to participate in an interview. Of those students who were willing to complete an interview, only ones with either high or low scores on the CCS were contacted to see if comments about the course validated measurement of community, connected, or learning.

Results

Demographics

Of the 227 students who completed the survey, 52.9% were undergraduates, 43.6% were graduate students, and 3.5% were undeclared. Consequently, proportionally more graduate than undergraduate students completed the survey, given that only 27% of the online courses were graduate level. In addition, 88.1% of the respondents were females. This sample reflects the population, since 80% of this university's online students were female during this same fall semester. The ages of respondents ranged from 20 to 50 years of age (see Table 2). Other demographic questions in the survey provided important information. Over 90% of the students did not feel technology interfered with their learning, and 50% of the students had taken at least five classes online. Seventy-five percent of the students reported spending 10 hours per week online. Limited number of responses in each class did not allow for statistical analysis of individual courses.

Instrument Reliability

The CCS performed in a manner consistent with the prior study conducted by Rovai (2002b). The reliability analysis of the CCS scale for this sample was similar to what Rovai originally reported in the development of the scale. For the 227 participants in the study, Cronbach's alpha for the full scale was 0.93, and, for the subscales "connected" and "learn-

TABLE 2
Demographics

<i>Characteristic</i>	<i>Group</i>	<i>Frequency</i>	<i>Percent</i>
Age	20s	73	32.2
	30s	56	24.7
	40s	69	30.4
	50s	29	12.8
Degree program	Undergraduate	120	52.9
	Graduate	99	43.6
	Undeclared	8	3.5
Face-to-face contact	Yes	36	15.9
	No	191	84.1

n = 227.

ing,” the alphas were 0.90 and 0.89, respectively. Factor analysis revealed the same two factors, connected and learning, and these two factors accounted for 50% of the variance. The two subscales were moderately related ($r = .639$; $p < .01$). (See Table 3)

Validity: Student Interviews

Validity of the scores on the CCS was confirmed through follow-up interviews with 10 survey respondents. No predetermined leveling of the scores was available for the CCS so, for this study, low, mid, and high scores were determined for each scale and subscale in order to organize the data and to choose students for the interviews. *High* scores were identified as those that fell more than one SD above the mean for each frequency distribution. *Low* scores included those that fell more than one SD below the mean. Scores that fell

between one SD above and one SD below the mean were designated as *mid* scores. (Table 4 displays the frequency of *low*, *mid*, and *high* scores for the scale and subscales.) Organizing the results in this way allowed the researcher to choose students for an interview to validate the survey. Interviewed students had either a low or high score on the CCS and included three students with low scores and seven students with high scores on the CCS.

Low Sense of Community

Patterns emerged in student responses to semi-structured interviews in courses rated as low sense of community: poor teacher characteristics, low student-to-student connection, individual assignments, poor quality of learning, and overall dissatisfaction with the course. In courses rated as low sense of community, the teacher was described in very negative

TABLE 3
Correlations Between Scales and Subscales

<i>Scale</i>	<i>1 CCS</i>	<i>2 Connected Subscale</i>	<i>3 Learning Subscale</i>
1. CCS	—	.911**	.899**
2. Connected subscale		—	.639**
3. Learning subscale			—

** $p < .01$

TABLE 4
High, Mid, and Low Scores on CCS

Scale	CCS		CCS Connected		CCS Learning	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Low	23	10.1	36	15.9	34	15.0
Mid	170	74.9	159	70.1	163	71.8
High	34	15.0	32	14.0	30	13.2

n = 227.

terms. The teacher was either disengaged, unavailable, or students felt like they were in “no man’s land.” They did not get feedback on assignments, did not understand expectations, or did not seem to have any way to connect to the instructor. One student assumed instructors “are just too busy on campus with other duties” and said teacher responses sometimes did not even make sense or apply to the discussion. In low sense of community courses, students did not feel connected to other students. Students did not interact on assignments, in discussion threads, or form relationships. Interestingly, even though they did not like the class, they still felt like they learned. Students reported they had the text book and could learn on their own even though the learning experience was not enjoyable. Students described these classes poorly overall and one stated “This is the worst class I have ever taken.”

High Sense of Community

Five main patterns emerged in student responses to semistructured interviews in courses rated as high sense of community: good teacher characteristics, strong student connection related to assignments, a change in personal perspective, quality learning, and satisfaction. In courses rated as high sense of community, the teacher was described as a positive force in the class: interactive, present, guided instruction, spent time, open, honest, and human. As one student said, “It is the instructor!”, or “The instructor really

got into it.” Students also described a strong connection with other students in the course. In these classes, interaction through discussion and group work was the norm. The projects required personal contact with each other. They had their own chat rooms, asked each other for help, and learned “more from each other than from the text book.” Classes high in sense of community often led to a change in a student’s perspective. Students revealed themselves to each other as they negotiated group assignments to solve problems. The students reported spending time with students from across the nation and outside the country. One student said, “This was an eye opener for me” as he realized his classmates had many different points of view. One student reported a major positive change in viewpoint and said, “Everyone should be required to take this class.” By far, students enjoyed courses with a high sense of community. They used phrases such as, “I loved it!,” “learned a lot from each other,” and “learned the most of any class I have taken” to describe this class. The most common phrase was simply “I learned a lot.”

CCS Results

The scores for the CCS and subscales for this sample are listed in Table 5. Mean scores are higher for the sample in this study ($M = 74.96$) than mean scores reported by Rovai (2002a) during the development and testing of the instrument ($M = 56.62$). See Table 5 for

TABLE 5
Mean Scores on CCS, Connectedness, and Learning Scales

<i>Scale</i>	<i>CCS</i>	<i>Connectedness</i>	<i>Learning</i>
	<i>20-100</i>	<i>10-50</i>	<i>10-50</i>
<i>Possible Score</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Sample <i>n</i> = 227	74.96 (12.1)	34.40 (6.73)	40.57 (6.52)
Rovai <i>n</i> = 375	56.62 (12.3)	26.45 (7.23)	30.17 (6.51)

comparison of results on the main scale and on subscales.

Discussion

The sample size, response rate, and selection criteria for this study mandate caution in generalizing its findings. The results for this study suggest that only 15% of the students who completed the survey perceived a high sense of community in their courses. In addition, a troubling 10% of this same sample of students perceived a low sense of community. Considering the concern about the quality of the learning experience and belief in the importance of building community online, these results are important. Long considered a standard of quality by instructional designers, developing a strong sense of community in learners online has been related to satisfaction, quality learning experience, and persistence/retention (Anderson & Elloumi, 2004).

Moore's interaction theory was supported in the student interviews. The three aspects of distance courses important to student learning are: a teacher who is present and interacting with students, students who interact with each other, and students interacting with the content (Moore, 1989; Moore & Kearsley, 1996). Student interviews revealed the importance of community online. They related how a connection to both the teacher and to each other led to an enjoyable, meaningful, and perceived high level of learning. Classes in which students perceived a low sense of community were miserable experiences, even though stu-

dents may have learned at least the content of the class.

The student interviews validated the low scores of the CCS. Students who rated courses as being low in sense of community described their online courses as miserable experiences. They rarely, if ever, heard from the instructor or interacted with other students. The students reported that they primarily completed individual assignments and interacted with other students only on a minimal basis. These classes in general did not require collaborative learning or negotiation of meaning. Students said things like "This class was the worst class I have ever taken online. There was absolutely no interaction between students except in chat rooms when we asked each other if anyone had heard from the instructor."

Students who perceived a *high* sense of community on the CCS reported learning as very enjoyable in the class. They felt part of a group, and some of them continued to contact each other even after class was over. One of these students commented, "I learned the most of any class online in this course.... We really felt like a community of scholars." In another comment typical of participants with a high CCS score, the interviewee said,

"You really see the types of homes everyone grew up in—their values. We all had very different values. Just because I think of things a certain way, doesn't mean everyone does. Really get an insight into different viewpoints."

Participants with a high CCS score described group projects in which they worked

to come to agreement on assignments, even though they had quite different perspectives on the issues.

The importance of social constructivist learning activities including interaction, social presence, and construction of knowledge, was alluded to by students as important aspects of online course design (Gunawardena & Anderson, 1997; Kanuka & Anderson, 1998). Students described social constructivist learning activities such as threaded discussions, debates, group projects, and problem solving activities in courses high in community. Results indicate that student satisfaction with online learning classes tend to be low when instructors simply post lecture notes, make individual assignments, and ask students to work in isolation without any interaction with other students or with the instructor. If learning is a social process and faculties are concerned about the lack of socialization, courses need to be designed to promote interaction and active learning.

Practice Implications

Considering the relative newness and rapid growth of online courses and programs, this study contributes needed information for students, faculty, and administrators. Adequate resources need to be allocated to address student preparation, faculty development, and program evaluation efforts for online teaching and learning (Maor, 2003). Not all students are suited for learning in an online course, and some may have false perceptions of course expectations. Student orientation needs to include an evaluation of their readiness to learn online, an orientation to typical course expectations, and necessary technology skills. In addition to adequate student preparation, program administrators need to measure a sense of community as students progress through a program. A student with a perception of a low sense of community would benefit from early intervention. Aggregate program data collected on sense of community could reveal causes of high attrition and lead to pro-

gram improvement (Rovai & Wighting, 2005.) Student preparation and program outcomes depend on quality instruction, and therefore teachers need support and development as well.

New teachers need to be prepared to teach online. Teachers who are new to the online delivery format of classes need information on course design and would benefit from mentoring (Maor, 2003). They need to learn about how to teach online to avoid some of the difficulties they can experience when they transition from teaching F2F to teaching online. Those who are new to teaching online typically try to emulate their on-campus courses in the new environment by simply uploading and using already developed lecture notes and PowerPoint slides. This approach may lead to individualistic assignments with limited interaction, which primarily takes place between the student and the instructor. The limited, one-on-one learning environment may promote feelings of isolation in the students and inhibit a sense of shared values within the community or discipline. At the same time, the one-on-one interaction between student and instructor can be very time consuming for the instructor. Social constructivist learning activities, such as collaborative learning, promotes more interaction among students, may require fewer overall demands on the instructor's time during the class, and results in a better learning experience.

Conclusions

Faculties have voiced concerns about the quality of online learning, specifically about online students' isolation and possible lack of socialization into the discipline. Results from this study suggest that online courses through the combined use of current computer technology and social constructivist learning activities may facilitate connectedness and allay some concerns about quality. By integrating learning activities that promote interaction, negotiation, and debate in online courses, instructors may begin to build a learning community in which

students collaborate to solve real life problems. In addition, learning assignments designed to facilitate student discussion of different values and points of view may help students become socialized into their disciplines and simulate communities of practice. Students' perceptions of sense of community relate to increased satisfaction in online learning. More research on Web pedagogy is needed to confirm and expand the findings of this study. Replication would strengthen the findings and contribute important information about ways to design online courses. Further research is also needed on the various types of learning outcomes and on student learning needs specific to the online environment.

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