Student Perceptions of Online Instructional Practices that Enhance Connectedness:
Themes Toward the Development of an Instrument

Mark A. Lamport | Paula J. Bartolo

This preliminary study examines online post-graduate students' sense of community. The purpose of the study is to identify salient themes toward the construction of an instrument assessing online community. Participants included volunteers from two online graduate courses (master's, specialist, and doctoral students) in a School of Education at a Christian university. Surveys measuring student connectedness and online tools that increase student sense of community were administered online. Results indicate that a majority of students positively experience a sense of community in the online classroom. Tools and instructional strategies identified as those most likely to promote a sense of community include discussion threads, personal introductions, and timely teacher feedback.

More than four and a half million students were enrolled in at least one online course in 2009 (Allen & Seaman, 2010). Although online courses offer convenience, the social interactions found in the classroom between the professor and students continue to be an area of irresolute uneasiness due to the high attrition rates in online programs (Angelino, Williams, & Natvig, 2007). A prime concern, of course, for administrators of online degree programs and operative faculty training is an empirically-informed understanding of intentional and effective instructional practices that create meaningful, community-building interaction between students and instructors.

In order to pursue these themes, we begin with an introduction to social learning theory and its contribution to a grounded understanding of online community.

SOCIAL INTERACTION LEARNING THEORY AND ONLINE COMMUNITY

Wison, Ludwig-Hardman, Thornam, and Dunlap (2004) describe a learning community as a group of learners working towards a common goal and intro-duced the concept of "bounded learning communities" which includes a group enrolled in a course where the instructor is part of the community. The concept of learning communities in online delivery is a topic that reoccurs throughout the literature. Creating a community of learners integrates social constructivism in creating learning situations through interactions in order for knowledge to be constructed.

Understanding the importance of social interaction has on learning in the online environment has evolved into a major area of research in asynchronous learning (Drouin, 2008; Liu, Magjuka, Bonk & Lee, 2007; Outzs, 2006). The study of social interactions in the online learning environment includes exploration of teaching practices and relationships between course design, delivery, instruction, and interaction and the effects on sense of community and student retention (Angelino et al., 2007; Drouin, 2008; Outzs, 2006; Young, 2006). Social interaction and the understanding of how learners gain knowledge are found in social constructivism theory (Vygotsky, 1978). Social constructivism in education bases learning on social

interaction with peers and instructors to build upon current knowledge in a welcoming environment that encourages exploratory interactions and engagement with new ideas.

Students' sense of community in an online learning environment comes primarily (and self-evidently) from two sources: interactions with classmates and professors. First, student perceptions of online sense of community correlate to quality peer interaction. Studies find a correlation between student's sense of community and their satisfaction with the course, social interactions, achievement, and retention (Drouin, 2008; Liu, Magjuka, Bonk & Lee, 2007; Outzs, 2006). Second, online faculty teaching methods and sense of community have a strong correlation with student performance and satisfaction (Dennen, Darabi, & Linda, 2007).

Social presence and interaction between instructor and students offers a unique look into online learning affected by the growth in online enrollment in higher education institutions. The study of online learning and teacher practices has generated further investigation to understanding online presence. Specifically, focusing on how student-instructor interactions, and teaching practices to build such interactions, correlate with student satisfaction and academic achievement (Durrington et al., 2006; O'Leary & Quinland, 2007; Shea & Bidjerano, 2008; Sher, 2009).

INCREASING AWARENESS AND PRACTICE OF TECHNOLOGY IN BUILDING ONLINE CONNECTEDNESS

Research suggests a positive relationship between teaching practices and student achievement, satisfaction, performance, assessments, and learner preferences (Dennen et al., 2007; Gaytan & McEwen, 2007; Lin & Overbaugh, 2007). However, traditionally-trained professors (who may not be well versed in online education research theory) often lack a comprehensive understanding of the importance of building learning communities in the virtual classroom (Liu, Magjuka, Bonk, & Lee, 2007). Durrington, Berryhill, & Swafford (2006) report some online teachers lack sufficient knowledge of using technology to increase student sense of community specifically interaction between students and instructor.

A national study finds that professors integration of technology is generally low (Smith & Caruso, 2010). The research indicates a slow adoption process of technology tools and resources by higher education faculty. The low usage of integration of technol-ogy in the higher education environment may not be surprising when referring to the "technology acceptance" theory. For example, Gibson et al. (2008) indicated that higher education faculty acceptance of technology was not related so much as to ease of use (complexity), but to its usefulness (pragmatism). Until professors are convinced that increased and/or effective technology may result in significant learning experiences (or online classroom community-building), they lack incentive to integrate a potentially powerful tool. An examination of those habits that online professors practice to foster community follows.

HABITS OF PROFESSORS THAT BUILD COMMUNITY IN ONLINE LEARNING

A positive correlative relationship exists between teacher presence and student motivation in online courses (Baker, 2010; Dennen, Darabi, & Smith, 2007; Gaytan & McEwan, 2007; Young, 2006). Teacher presence in an online course includes interaction in the online learning environment where the student perceives the instructor as visible, active, and involved in the course and learning environment. Durrington et al. (2006) defined multiple strategies to increase instructor interaction in an online course such as immediacy, detailed feedback on discussion postings, and community building. By fostering instructor immediacy and teacher presence in the online classroom, one can enhance student satisfaction, motivation, and cognitive learning. Encouraging online faculty members to integrate teaching strategies that enhance their virtual presence promotes student-student and student-instructor interaction. Craig (2008) found students place at high importance meaningful feedback on course work and instructor guidance in online discussions.

Providing meaningful feedback and facilitating discussion boards are rated by students as the two most important roles of the online instructor (Craig, 2008). In addition, students' perceptions of their achievement and satisfaction are related to teacher correspondence and immediacy (Dennen et al., 2007). Therefore, higher education institutions offering online programs would do well to investigate ways to increase quality community-building communication between students and their classmates and their professors. Innovation in this endeavor has the potential to stem the exceptionally high rate of attrition found in online learning (Allen & Seaman, 2010).

COMPELLING DIMENSIONS IN STUDENTS' SENSE OF ONLINE COMMUNITY

Ouzts (2006) found students that reported low sense of community identified minimal interaction with peers and dissatisfaction with the instructor and course. Online instructional practices may serve as an important factor in student satisfaction and sense of community. Teacher communication is rated the most important factor by students in relation to perceptions of quality instruction (Craig, Goold, Coldwell, & Mustard, 2008; Dennen et al., 2007; Gayton & McEwen, 2007). Dennen et al. (2007) highlights that online instructors may lack an understanding of how to communicate with students in an online course in a way that fosters a sense of community.

Online learning allows the instructor and students to connect to the course from any location in the world at any given time. Online instructors have the additional task of social context within the online course in creating and facilitating an online sense of community. Developed models of online teaching identify specific roles of the instructor that include the socialization aspect of creating a community of learners (Craig et al., 2008; Ice et al. 2007). Research identifies various strategies an online instructor can implement in the course design to help students gain a sense of belonging that eliminates the feelings of isolation, creates a sense of community, and enhances student satisfaction.

In sum, the study of community in the online environment involves an understanding of students' sense of belonging, interaction, isolation, class climate, and sense of individual importance (Rovai, Wighting, & Liu, 2005).

DISTINGUISHING ROLES OF THE PROFESSOR IN ENHANCING CLASSROOM COMMUNICATION

Bawane and Spector (2009) compiled a conceptual list of eight main teacher roles in the online environment: professional, pedagogical, social, evaluator, administrator, technologist, advisor, and researcher. Online instructor perceptions' ranked pedagogy as being the highest importance of the role as an online instructor above the other seven (Bawane & Spencer, 2009). The pedagogical role consists of the design and implementation of the curriculum, integration of technology, facilitator, and student motivator.

Dennen et al. (2007) found that instructors' perceptions of students' beliefs of instructor actions have a strong correlation to student satisfaction. Although communication is an important practice of the online teacher as perceived by students, the use of synchronous tools in the online learning environment is not rated as high as feedback and immediacy asynchronously (Dennen at al., 2007).

Continuous instructor communication is an indicator of quality in an online course (Gayton & McEwen, 2007). Online students do not have face-to-face contact with peers and the instructor as found in traditional classroom settings. Therefore, online instructors face the challenge of building a sense of community within the virtual classroom using tools and strategies that eliminate student perceptions of isolation. According to Dickey (2004), learning is impacted by student perceptions of isolation. Because an online professor does not normally have direct verbal contact with an entire group of students in a classroom, the professor implements communication and collaboration strategies through asynchronous feedback with students through posted messages, directions, and email. The online instructor is a facilitator of the course and implements multiple strategies for communicating course requirements and text-based discussions. Interestingly, an emphasis of online teaching and the critical nature faculty competency as "facilitator" shares a common theme in the prevailing literature (Craig, Goold, Coldwell, & Mustard, 2008).

Ice, Curtis, Phillips, and Wells (2007) identify an online teaching model highlighting four main pedagogical roles of an online professor: profession-inspirer, feedback-giver, interaction-facilitator, and social rapport builder. These functions serve as a model in understanding the different strategies online professors implement in the online course environment. The online instructor forms a community of learners through facilitation of discussions that promote learning and understanding of the course objectives and provides continuous feedback to guide inquiry and promote learning (Ice et al., 2007).

SUMMARY OF THE LITERATURE

While there is a growing body of research that contributes grounded theory in community-building communication in the online learning environment, there is not a palpable mass that guides effective practices for online graduate degrees. Indeed, the preponderance of online research focusses on the undergraduate experience. Consequently, there is a need for additional inquiry regarding online graduate degree students' sense of community, isolation, and

defining instructional strategies that increases student connection with classmates and teacher. Nevertheless, research has rather conclusively demonstrates that students' heightened sense of community correlates positively with indicators such as retention, student course satisfaction, and effective teaching strategies (Drouin, 2008; Ouzts, 2006).

Building on this platform, the current study will examine the online teaching strategies and online communication technologies that enhance the students' sense of community. Higher education institution online administrators, course designers, and professors will benefit by its implementation for the improvement of their programs that promote connectedness.

METHOD

Purpose

This study investigates post-graduate online students' sense of community and examines technological tools and pedagogical approaches that increase students' sense of community in the online classroom. Specifically, the study seeks to answer the question, what strategies do online instructors implement to enhance students' sense of connection? The following questions guided the pilot study:

1. What are post-graduate students' perceptions of community in their online courses?

2. To what extent does the sense of community in an online course differ by gender?

3. Which course management tools and other instructional strategies are found to be the most effective in creating a sense of community?

Participants

The participants of the study were online educational specialist and educational doctoral degree candidates enrolled in an accredited distance education program from a Christian university located in the southeastern United States. The sample is a convenience sample from two doctoral level online courses during the summer of 2010. Participants were recruited through email as identified by the course roster. Final participant sample included 26 post-graduate students (response rate of 46%).

Instrumentation

A web-based tool (www.surveymonkey.com) was utilized to implement the Classroom Community Scale (Rovai, 2002) and Online Tools for Class Community Survey. The Classroom Community Scale consisted of two subscales which one subscale measured student "Connectedness". A reliability test for the instrument reported a Cronbach's coefficient of .93 for the overall measure and .92 for the "Connectedness" subscale (Rovai, 2002). Two minor adjustments were made to the original "Connectedness" subscale: 1) one of the questions was eliminated to allow for gender responses, and 2) the numerical value of the Likert-scale was altered from zero through five in the original instrument to five to one (strongly agree, agree, neutral, disagree, and strongly disagree) in this study. The mean for each statement is displayed in Table 1. The data was additionally analyzed through the subscale scoring system as defined by Rovai (2002).

The Online Tools for Class Community Survey was created to measure student perceptions of online course strategies that build a sense of community. The questionnaire included a five-point Likert scale, true/false, multiple choice, and open-ended questions. The open-ended questions allowed respondents to express their feelings on relevant survey topics. The answers to these open-ended questions were analyzed and organized by similar emerged themes and reported in Table 2.

Procedures

Participants were students enrolled in two sections of online post-graduate education courses. Students were emailed a letter of invitation during the last week of the course for voluntary participation in the pilot study with hyperlinks to the two web-based voluntary surveys. Collection of the survey data occurred over a five-day period. The day before the closing of the survey collection, students were emailed a reminder to complete the surveys.

RESULTS AND DISCUSSION

Eleven participants responded to the Connectedness subscale survey. Eight were female (73%) and three were males (28%). Responses to the survey items are displayed in Table 1.

Table 1. Results for Sense of Community Survey (Rovai, 2002)					
N=11	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I feel connected to others in this course.	18%	36%	36%	9%	--
I do not feel a spirit of community.	--	18%	36%	27%	18%
I feel students in this course care about each other.	18%	55%	18%	9%	--
I feel isolated in this course.	--	9%	18%	64%	9%
I trust others in this course.	27%	36%	36%	--	--
I feel I can rely on others in this course.	9%	55%	9%	27%	--
I feel members of this course depend on me.	9%	9%	36%	27%	18%
I feel uncertain about others in this course.	--	9%	64%	18%	9%
I feel confident others will support me.	9%	46%	36%	9%	--

Table 2 presents the results of the Online Tools for Class Community Survey regarding students' perception of the value of various online tools for fostering class community. The responses to the second survey represent twelve participants.

RESEARCH QUESTION ONE: SENSE OF COMMUNITY

The "Connectedness" subscale from the Classroom Community Scale (Rovai, 2002) indicates that 62% of the students feel a sense of connectedness within the post-graduate students' online learning community. The edited subscale highest possible raw score was 36 with the lowest possible score of zero. As found in Table 4 the total mean score for all survey participants was 22.45 (S.D. = 6.67), slightly lower than previous finding M=26.45 (Rovai, 2002) and M=34.40 (Ouzts, 2006).

In addition, the open-ended responses from the second instrument indicate online students desire further communication from the professor as a means of enhancing community. This result reso-nates with another study in which 68% of online students and 48% of faculty perceived that increased email communication would enhance relationships (Weiss & Hansen-Baldauf, 2009). Further, a strong correlation in the literature links students' perceptions of a greater sense of community with warm and meaningful student-faculty contact (Lamport, 1991; Lamport, 1994; Pascarella & Terenzini. 1991).

RESEARCH QUESTION TWO: GENDER DIFFERENCES

Table 4 displays the comparison mean scores between genders. The results suggest males (N=3) were found to have a higher sense of connectedness (M=25.67, S.D. =9.29, S.E. = 1.03). However, the small sample of males had a high standard deviation and standard error compared to that of the female participants and may not give a reliable depiction of differences between groups. Rovai's (2002) test instrument study found there to be significance between genders with females having reported a higher sense of classroom community. As displayed

Table 2. Online Tools for Class Community Survey						
Gender: Female: 9 (75%)			Male: 3 (25%)			
The following Blackboard Tools help me feel connected with my classmates: (Rank from Low (1) to High (5):						
	1	2	3	4	5	
Discussion Board Threads	8%	--	33%	17%	42%	3.83
Personal Introductions	--	8%	17%	59%	16%	3.83
Email	17%	8%	33%	33%	8%	3.08
Announcements	25%	33%	17%	17%	8%	2.50
Virtual Classroom	64%	36%	--	--	--	1.36
Chat Sessions	78%	18%	9%	--	--	1.36
Wikis	91%	9%	--	--	--	1.09
I feel uncertain about others in this course.	--	9%	64%	18%	9%	
I feel confident others will support me.	9%	46%	36%	9%	--	

The following online course strategies help me feel the most connected with my classmates and instructor.		
Discussion Board Threads	75%	9
Discussion Board Groups	67%	8
Emailing Instructor	67%	8
Emailing Classmates	42%	5
Blackboard Chat Sessions	8%	1
Blackboard Wikis	--	0
LU Instant Messenger	--	0

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Group projects increase my sense of community with classmates.	9%	36%	36%	18%	--
Professor interaction with discussion board threads increases my feeling of class community.	42%	42%	8%	8%	--
Updated announcements on the class page increases my sense of course community.	50%	33%	17%	--	--

What teacher strategy do you feel best creates a sense of student community in an online class? (Open Response) N=11
•   Feedback on discussion boards and announcements
•   Much communication
•   Class introductions to some extent
•   Personal feedback
•   Discussion Board
•   Taking part in Discussion Board
•   Personal emails
•   Assignments for Discussion Board
•   Requiring students to respond numerous times to posts on the discussion board. I also felt closer to those in my discussion group.
•   Sharing personal tidbits about themselves.
•   Creating an introduction biography page along with introduction thread on DB.

What strategies do you feel a professor can implement to relieve the feeling of isolation in an online course? (Open Response) N=9
•   Group work
•   Any kind of direct contact. Individual email or phone call
•   Reaching out to the student on a one-to-one basis, or Mentoring.
•   Personalized feedback on work assignments. Weekly announcements.
•   Responding to emails in a timely fashion
•   Assignments for Discussion Board
•   I think we should have a required "meeting" time where we can see and meet the professor (online) and meet each other at least once. I feel really alone in this program!
•   Personal feedback regarding assignments and discussion board comments.
•   Personal emails giving feedback about specifics listed on biography page and specific feedback to assignments.

Timely feedback from my professor increases my satisfaction with an online course.		
0%	True 100%	False 0%

I feel connected to others in this course.				
Strongly Agree - 42%	Agree - 42%	Neutral - 8%	Disagree - 8%	Strongly Disagree -

Table 3. Perceived positive impact of increased email		
Learning	50%	67%
Grades	6%	30%
Relationships	49%	68%

Table 4. Statistical Results of Subscale "Connectedness" (Rovai, 2002)					
	Min	Max	*M*	S.D.	S.E.
Male (N=3)	18	36	25.67	9.29	1.03
Female (N=8)	13	28	21.25	5.73	0.09
Total (N=11)	13	36	22.45	6.67	0.06

Table 5. One-Way Analysis of Variance between Genders					
	Sum of Squares	df	Mean Square	Fisher F-value	Significane (p)
Between Groups	42.625	1	42.625	0.953	0.354
Within Groups	402.439	9	44.715		
Total	445.063	10			

in Table 5, an ANOVA found no significance between genders (P=.354) in the current study.

RESEARCH QUESTION THREE: BLACKBOARD TOOLS AND OTHER INSTRUCTIONAL STRATEGIES

Based upon the results of the Online Tools for Class Community Survey, the pedagogical tool that was selected as being the most effective in creating a sense of community in the online classroom was "discussion board threads" (with the highest rating of five). The second most important online pedagogical strategy was "personal introductions" (with a ranking of four). These findings seem to confirm previous research that found that communication through discussion boards and learning about fellow classmates enhanced students' sense of community (Drouin, 2008).

In addition, all participants agreed that timely instructor feedback increased their satisfaction with an online course. Illustrating this point, my personal approach (Lamport, personal experience) is to grade all submitted papers every morning uploaded from the previous day so that all assignments are returned within 24 hours. The course evaluations each term never fail to note the rapid turnaround time on grading with appreciation.

Student responses of instructional strategies that online instructors could implement to create the most sense of connection between classmates and teacher include discussion board threads (75%), discussion board groups (67%), email between instructor and student (67%), and email between students (47%). Consequently, group work is not seen as effective in building sense of community in comparison to face-to-face work. The study identified strategies that create a student sense of community; these findings are parallel previous research (Rhode, 2009).

IMPLICATIONS

Several important social factors seem to suggest the critical importance of student satisfaction and connectedness to increased retention and quality in online courses. Community-building social interactions are inherent in student satisfaction; as such, we offer the following suggestions to enhance online community. Online instructors could foster students' sense of community by:

1. Exploring the impact of video communication (in course design, delivery and instruction) for increasing a sense of students' connectedness in the online classroom (Allen & Seamen, 2010).

2. Dedicating deliberate attention to the creation of a community of learners through assignment feedback, interaction in discussion boards, and sharing personal information with students.

3. Focusing attention on pedagogical strategies designed to relieve feelings of isolation (i.e., group work; personal contact through email or phone calls; personalization of feedback on coursework as well as in discussion boards; and timely responses). One participant noted, "I think we should have a required 'meeting' time where we can see and meet the professor (online) and meet each other at least once. I feel really alone in this program!"

4. Examining the role of group projects in fostering a sense of community in online learners. Relevant to the current findings, Drouin (2008) found that student-to-student interaction is more predictive of a students' perceived sense of community than that of teacher-to-student interaction. Interestingly, Drouin (2008) also found that sense of community did not have a positive relationship to student retention.

5. Individualizing interactions with students in the online classroom through well-developed discussion boards, the use of email to individually praise student work or help guide a student, and creation of peer discussion board groups where one student acts as the instructor in facilitating the discussions (Durrington et al., 2006).

6. Implementation of learning communities. Increased student involvement highlights the role of the teacher as facilitator, which is part of the constructivist learning theory. In this model, the teacher becomes the facilitator and the technology becomes an integral component of the learning process as it serves as the platform for connecting students.

7. Incorporation of new teaching approaches targeted at current generational learning styles. Bosch (2009) suggests a generational learning style that exists for Millennials that incorporates social media to meet the needs of the learner. Higher education educators face bridging the gap between generational learner needs and acceptance and usefulness of certain technologies that Millenials have been using through their lifetime as well as the desired actions of understanding the student enrolled in the online course environment. One of the pedagogical actions of an online instructor is promoter of class participation (Bawane & Spencer, 2009); this role highlights the importance of teacher feedback and interaction.

Author Biographies

Mark A. Lamport has master's degrees from Wheaton and Princeton, and a Ph.D. in Curriculum and Instruction from Michigan State. After a career in the classroom of 25 years at Gordon (MA), Huntington (IN), and Grand Rapids Theological Seminary (MI), he now enjoys an online career with Grand Canyon (AZ), Liberty (VA), Colorado Christian, and Indiana Wesleyan. He is author of 125 academic articles, chapters, essays, and reviews in over thirty-five journals, books, and periodicals, and has published for 28 consecutive years. Lamport is in the final stretch of a four-year adventure teaching at theological schools in Amsterdam, Belfast, Brussels, London, and Lisbon. He is the father of four married young adults and grandfather to five. He enjoys Anthony Hopkins movies; buying clocks and oriental carpets; long-distance running; the Chicago Cubs; his wife's cooking; international travel; and the summer Olympics.

Paula J. Bartolo has a Master of Education and an Educational Specialist degree with concentrations in Educational Leadership and Instructional Technology, and is a Doctor of Education candidate in educational leadership from Liberty University. Her dissertation topic interest is in online sense of community in learning and teaching. She currently works as a teacher of instructional technology for the Bridgewater-Raynham Regional School District in Massachusetts. Ms. Bartolo is licensed as a teacher of instructional technology and is certified as a PreK-6 principal/assistant principal. She believes she has been called to teach technology to help students grow in the knowledge of the use of technology in an ever-growing digital society. She has experience working with students in the elementary and community college level and facilitating technology workshops.

References

Allen, I, E., & Seaman, J. (2007). Online nation: Five years of growth in online learning. Needham, MA: Sloan-C.

Allen, I, E., & Seaman, J. (2010). Learning on demand: Online education in the United States, 2009. Retrieved from the Alfred P. Sloan Foundation website: http://sloanconsortium.org/publications/survey/learning_on_demand_sr2010

Angelino, L. M., Williams, F. K., & Natvig, D. (2007). Strategies to engage online students and reduce attrition rates. The Journal of Educators Online, 4(2). Retrieved from http://www.thejeo.com/Archives/Volume4Number2/V4N2.htm

Bawane, J., & Spector, J. (2009). Prioritization of online instructor roles: Implications for competency-based teacher education programs. Distance Education, 30(3), 383-397. doi:10.1080/01587910903236536

Bosch, T. E. (2009). Using online social networking for teaching and learning: Facebook use at the University of Cape Town. Communicatio: South African Journal for Communication Theory & Research, 35(2), 185-200. doi:10.1080/02500160903250648

Bradford, P., Porciello, M., Balkon, N., & Backus, D. (2007). The blackboard learning system: The be all and end all in educational instruction? Journal of Educational Technology Systems, 35(3), 301-314.

Cameron, B. A., Morgan, K., Williams, K. C., & Kostelecky, K.L. (2009). Group projects: Student perceptions of the relationship between social tasks and a sense of community in online group work. American Journal of Distance Education, 23(1), 20-33. doi:10.1080/08923640802664466

Craig, A., Goold, A., Coldwell, J., & Mustard, J. (2008). Perceptions of roles and responsibilities in online learning: A case study. Interdisciplinary Journal of Knowledge & Learning Objects, 4, 205-223.

Dennen, V. P., Darabi, A. A., & Smith, L. J. (2007). Instructor-learner interaction in online courses: The relative perceived importance of particular instructor actions on performance and satisfaction. Distance Education, 28(1), 65-79.

Dickey, M. (2004). The impact of web-logs (blogs) on student perceptions of isolation and alienation in a web-based distance-learning environment. Open Learning, 19(3), 279-291. doi:10.1080/0268051042000280138

Drouin, M. A. (2008). The relationship between students' perceived sense of community and satisfaction, achievement, and retention in an online course. Quarterly Review of Distance Education, 9(3), 267-284.

Durrington, V. A., Berryhill, A., & Swafford, J. (2006). Strategies for enhancing student interactivity in an online environment. College Teaching, 54(1), 190-193.

Gaytan, J., & McEwen, B. C. (2007). Effective online instructional and assessment strategies. American Journal of Distance Education, 21(3), 117-132. doi:10.1080/08923640701341653

Gibson, S. G., Harris, M. L., & Colaric, S. M. (2008). Technology acceptance in an academic context: Faculty acceptance of online education. Journal of Education for Business, 83(6), 355-359.

Ice, P., Curtis, R., Phillips, P., & Wells, J. (2007). Using asynchronous audio feedback to enhance teaching presence and students' sense of community. Journal of Asynchronous Learning Networks, 11(2), 3-25.

Lamport, M. (1993). Student-faculty informal interaction and the effect on college student outcomes: A review of the literature. Adolescence, 28(112), , 971-990.

Lamport, M. A. (1994). Student-faculty informal interaction and its relation to college student outcomes in Christian college settings: Research and implications. Research on Christian Higher Education, 1(1), , 66-78.

Lin, S. Y., & Overbaugh, R. C. (2007). The effect of student choice of online discussion format on tiered achievement and student satisfaction. Journal of Research on Technology in Education, 39(4), 399-415.

Liu, X., Magjuka, R. J., Bonk, C. J., & Lee, S. (2007). Does sense of community matter?: An examination of participants' perceptions of building learning communities in online courses. Quarterly Review of Distance Education, 8(1), 9-24.

Ouzts, K. (2006). Sense of community in online courses. Quarterly Review of Distance Education, 7(3), 285-296.

Pascarella, E., & Terenzini, P. (1991). How college affects students: Findings and insights from twenty years of research. San Francisco, CA: Jossey-Bass, Inc..

Rhode, J. F. (2009). Interaction equivalency in self-paced online learning environments: An exploration of learner preferences. The International Review of Research in Open and Distance Learning, 10(1). Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/603/1178

Rovai, A. P. (2002). Development of an instrument to measure classroom community. Internet and Higher Education,5(3), 197-211.

Rovai, A. P., Wighting, M. J., & Liu, J. (2005). School climate: Sense of classroom and school communities in online and on-campus higher education courses. Quarterly Review of Distance Education,6(4), 361-374.

Shea, P., Li, C.S.,& Pickett, A. (2006). A study of teaching presence and student sense of learning community in fully online and web-enhanced college courses. Internet & Higher Education, 9(3), 175-190. doi:10.1016/j.iheduc.2006.06.005

Sher, A. (2009). Assessing the relationship of student-instructor and student-student interaction to student learning and satisfaction in web-based online learning environment. Journal of Interactive Online Learning, 8(2), 102-120.

Smith, S. D., & Caruso, J. B. (2010). The ECAR study of undergraduate students and information technology, 2010 (Research Study, Vol. 6). Retrieved from Educause, Center for Applied Research website: http://www.educause.edu/

Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., & Cooper, S., (2006). Teaching courses online: A review of the research. Review of Educational Research, 76(1). 93-135. doi:10.3102/00346543076001093

Weiss, M., & Hansen-Baldauf, D. (2008). Email in academia: Expectations, use, and instructional impact. Educause Quarterly,31(1), 42-50.

Vygotsky, L. S. (1978). Mind in society. Harvard University Press: Cambridge.

Young, S. (2006). Student views of effective online teaching in higher education. American Journal of Distance Education, 20(2), 65–77. doi: 10.1207/s15389286ajde2002_2