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**FACULTY AND STUDENT PERCEPTIONS OF STUDENTS'
SENSE OF COMMUNITY IN ONLINE COURSES**

by

William C. Fiege

B.S. December 1994, Longwood College
M.S. August 1996, Bloomsburg University

A Dissertation Submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirement for the Degree of

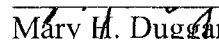
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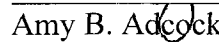
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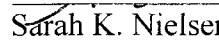
OLD DOMINION UNIVERSITY

July 2011

Approved by:

_____
Marv H. Duggan (Director)

_____
Amy B. Adcock, (Member)

_____
Sarah K. Nielsen (Member)

_____
Terrell L. Perry (Member)

ABSTRACT

Faculty and Student Perceptions of Students' Sense of Community in Online Courses

William C. Fiege
Old Dominion University, 2011
Director: Dr. Mary H. Duggan

The Classroom Community Scale (Rovai, 2002b) was used to examine faculty and student perceptions of students' sense of community at two points during an academic semester. The study also examined the relationship between student sense of community scores and their final course grades. A non-experimental research design was used by the researcher to analyze pre-survey to post-survey score means of students' sense of community as perceived by students and faculty. Two hundred sixty-nine (269) students and 48 faculty members representing 56 online arts and science courses at a community college in Virginia completed the pre-survey and post-survey surveys.

Students' perceptions of their sense of community score means significantly declined from the beginning of the semester to the end of term within many of the tested variables including one math course, total population, male students, female students, part-time students, biology students, "other" students, white students, students with no prior online experience, and students having completed seven or more online courses prior to the start of the semester. Students also articulated a decline from early in the semester to the end of the term regarding perceptions of timely feedback and opportunities for learning. Faculty perceptions of students' sense of community showed a significant decline in only four of the tested variables including full-time faculty pre-survey score means compared to part-time faculty; sociology faculty pre-survey score means compared to English Composition and English Literature faculty; biology, philosophy, and psychology faculty post-survey score means compared to English literature

faculty; and philosophy faculty pre-survey score means compared to Communication Studies and English Composition instructors. In a comparison of student to faculty sense of community pre-survey and post-survey mean scores, full-time student pre-survey score means were significantly higher than full-time faculty pre-survey score means, sociology students had significantly higher pre-survey score means than the sociology faculty, and students with three to four years of online experience had significantly lower perceptions of students' sense of community than faculty with three to four years of online course experience. A small positive correlation between students' final course grades and students' sense of community was found within the total population, female students, full-time and part-time students, white students, and students between the ages of 24-30 and 31-40.

Professional development sessions will be created for the researcher to meet with specific campus groups to explain the research and present the findings. These sessions will ideally result in discussions to enhance the online program. Although 50% of students indicated that they do not need or desire a sense of community within their online course(s), the correlation between sense of community and student grades cannot be ignored. The results should not be generalized to a larger audience; however, other schools may use the data and analyze it to begin conversations regarding sense of community at their respective institutions. This study presents several implications for future research including operationalizing "sense of community", reviewing course activities desired in online courses, defining online interaction, examining whether students wish to learn or simply complete course requirements, and identifying student and faculty expectations for timely feedback.

DEDICATION

My parents, John C. and Katharine W. Fiege, combined to work in secondary and higher education for over 60 years. They made an impact on thousands of lives during their careers but none more influential than the values and lessons they bestowed on me. Thank you Mom and Dad for your unconditional love, devotion, and support. I am honored and proud to be your son!

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Thank you to my wonderful wife, Renee, for your patience and understanding during this long, enduring journey. We are a team, and I could not have finished it without you. Here's to more fun times ahead!

Thank you to my beautiful daughters, Erin and Erika, whose laughter and silliness have kept me grounded and forced me to find balance between paper, work, and family. You can do anything you want in life, just aspire to be your very best at whatever it is you choose.

Thank you to my dog, Ripken, for the early morning and late evening walks to escape the daily grind and stay relatively fit.

Thank you to my family, friends, and colleagues who helped me with reading a draft, getting appropriate approvals, and/or helping formulate an appropriately styled chart. Realizing names may be omitted unintentionally, thank you to Renee, Mom, Dad, John, Ashley, Caroline, Debbie, Ann, David, Carol, Tom, Lisa, Julie, Kevin, Yanyan, Cheryl, Forrest, Stephanie, Denise, and Bianca. Thank you, also, to all of the students and faculty who completed the surveys!

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Thank you to my committee members (Dr. Duggan- chair, Dr. Adcock, Dr. Nielsen, and Dr. Perry) for the fast response times and tremendous encouragement and support. Dr. Duggan, you are a wonderful coach! You knew when to encourage, when to push, and when to be critical and did each with integrity and passion which lead to my eventual success. Thank you for not giving up on me and helping get me cross the finish line!

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CHAPTER 1

INTRODUCTION

The number of online courses continues to expand at a rapid pace with the total number of hybrid/online students growing from 1.6 million in Fall 2002 (Allen & Seamen, 2006) to 5.6 million in Fall 2009. The 21% growth (over one million students) of new online students from 2008 to 2009 was substantially higher than the increase for “traditional” students, which was only two percent. Online students now compose nearly 30% of all students enrolled in higher education (Allen & Seamen, 2010a). More than 70% of two-year colleges offer at least one online course, and over half of all online students are enrolled through a community college (Allen & Seamen, 2010b). Online learning has become part of the higher education culture with students expecting opportunities to take courses and earn degrees “attending class” using computer technology (Carnevale, 2005). Even K-12 schools are involved with over one million students now enrolled in an online course (Means, Toyama, Murphy, Bakia, & Jones, 2009). Online learning continues to grow, and with increasing expectations for institutions to graduate students (VCCS, 2010a), ensuring student success is important. Research highlights having a sense of community in online courses increases student success and learning (Liu, Magjuka, Bonk, & Lee, 2007; Outzts, 2006; Rovai, 2002a).

Although not all students desire a sense of community (Brown, 2001; Cameron, Morgan, Williams, & Kostecky, 2009), researchers have clearly identified sense of community and interaction as important elements for students to succeed in online courses (Rovai, 2002a; Caliskan, 2009). The current study focused on student and faculty perceptions of students’ sense of community within the same online courses at two distinctive times during an academic

semester and examined if a significant correlation between students' sense of community and final student course grades existed.

Background

According to the National Center for Public Policy and Research (1998), 84% of Americans believe that a college education is important to have a successful career, and 66% of those who have not attended college wish they had. Research also links income to education and education to advancement (Day & Newburger, 2002). Weekly income for citizens 25 and over who lack a high school diploma or general equivalency diploma (\$454) differs substantially when compared to the income for those with professional (\$1,529) or doctoral (\$1,532) degrees. Citizens with an associate degree have a mean weekly salary of \$761, and those with a bachelor's degree earn \$1,025 (United States Department of Labor, 2010). Statistically, graduation from college leads employees to a better job and more money (The National Center for Public Policy and Research).

The advent of online learning provides students with more opportunities to complete courses and earn degrees because online courses are intended to reach adults with work, family, and social commitments. In fact, many online learners have jobs and families (Simonson, Smaldino, Albright, & Zvacek, 2003). According to Tanner, Noser, and Totaro (2009), the "common online student" is 23, married with children, and working full-time. The flexible scheduling of asynchronous distance learning classes enables students to meet their hectic schedules because they do not have designated times when they must attend class. Courses designed in an asynchronous format allow students to maintain their jobs and fulfill family obligations; therefore, students may "attend class" online at any time during the day or in the evening to complete course requirements (Hoffman, 2002). A survey of college students found

that 77% of all undergraduates worked while enrolled during the academic year, and 26% of those individuals were full-time employees (Choy, 2002). The American Council on Education (2006) reported that 78% of undergraduates work an average of 30 hours per week. For many workers and/or parents, completing courses at a distance is their only way to enroll in higher education and eventually earn a college degree. Students appreciate the control over their personal schedules that the flexibility and convenience of online courses allow (Mahoney, 2009).

Enrolling in online courses may be the only method by which students can complete their education, and it is important that they are able to succeed completing their studies via this modality. Research indicates no significant difference between student learning in face-to-face and online courses (Larson & Sung, 2009; Mersiotis & Phipps, 1999). The method of course delivery (online or face-to-face) does not impact student grades, learning, and satisfaction (Larson & Sung) as much as the quality of faculty preparation and presentation of course information (Aragon, Johnson, & Shaik, 2002). However, research also suggests online students have lower success rates than those enrolled in face-to-face courses (Rovai, 2002a). Carr (2000) found the difference as high as 25%. Although Virginia Community College System (VCCS) “Grade Analysis” data highlight improvement in online success from 2006 to 2010, students enrolled in VCCS courses with 500 or more students have overall better success rates in the face-to-face sections than in the equivalent online courses (VCCS, 2007, 2008, 2009, 2010b). Nationally, dropout rates tend to be higher in online courses than in the face-to-face classes (Rovai) with attrition rates up to 20% higher in online classes than in face-to-face courses (Carr).

Research attributes lower success rates in online courses to minimal personal interaction within courses (Berge, 1999; Carr, 2000) and lack of sense of community (Voos, 2003). When students engage with one another and consistently communicate with their instructors, they are

more prone to learn course material and persist in their classes (Hu & Kuh, 2001). Students who enjoy the online learning environment and persist in their courses are often more satisfied and have higher levels of learning (Frederickson, Pickett, Shea, Pelz, & Swan, 2005). Students are more likely to continue in courses when they feel the coursework is relevant to them both personally and intellectually (Park & Choi, 2009).

Higher dropout rates negatively impact student success and retention, but students leave online courses for many reasons. Students believing online education is essentially an independent study are often unprepared to work in groups and collaborate with fellow students within the online environment (Paloff & Pratt, 2005). Some students enter the online arena with the perception that online classes are less difficult than face-to-face instruction (Osbourne, Kriese, Tobey, & Johnson, 2009). Institutions are working diligently to dispel this myth by providing thorough training and/or orientation sessions for students to learn how to successfully complete online courses.

Online students often feel disconnected and/or alone because they feel isolated from the professor and lack direct face-to-face contact with instructors and fellow students (Besser & Donahue, 1996; Kerka, 1996; Slagter van Tryon & Bishop, 2009; Twigg, 1997). Voos (2003) suggested that students are more prone to leave distance courses if they do not feel a sense of community, and if coursework is not related to their personal or professional ambitions (Park & Choi, 2009). Students want to develop relationships with their faculty and peers, and these relationships in turn lead to more positive learning experiences (Liu, Magjuka, Bonk, & Lee, 2007; Tinto, 1993). A successful learning community requires more than a web site and instructors to manage it (Baek & Schwen, 2006); a successful learning community requires faculty using instructional methods to engage learners and encourage interaction (Colachico,

2007; Dede, 1996). Faculty should maintain a good rapport with students to help foster a more meaningful learning experience (Akyol, Garrison, & Ozden, 2009)

Students enjoy interacting with course content, expect faculty creativity, and desire teaching methods that might include games, video recordings, textbook readings, and/or case studies that are then related to the discussion board topics (Northrup, 2002). Learning increases when students have creative faculty who provide thought-provoking course activities that keep students engaged. Although it takes time to create lessons that promote interaction between and among students and faculty, research suggests interaction among students increases comprehension (Berge, 1999; Northrup, 2002; Russo & Benson, 2005; Vesely, Bloom, & Sherlock, 2007; Vygotsky, 1978). Faculty can use discussion board forums, e-mail, chat sessions (Aragon, 2003; Aragon & Johnson, 2008; Dawson, 2006; Keefe, 2003), face-to-face meetings, phone, and text messaging (Dawson) to engage students to form a sense of community. Faculty can have their course outline available at the start of the semester and ensure it is clear and concise from the beginning (Young, 2006). A strong sense of community within the online environment has proven to correlate with meeting learning outcomes for the course (Vesely et al., 2007) and as instrumental as understanding technology when teaching online (Darabi, Sikorski, & Harvey, 2006).

Some students and faculty, however, do not desire a sense of community within online courses. They want to acquire the knowledge desired and not be involved with interactive activities between peers (Brown, 2001; Cameron et al., 2009). In a study by Liu et al. (2007), online students were reticent about joining online communities and participating in group activities; however, in that same study, researchers found positive correlations between students' participation in a learning community and course engagement, learning, and satisfaction.

Cameron et al. (2009) believed that faculty members need to foster collaborative activities earlier in an online course to assist students' understanding of its importance and help them build relationships with one another. At the same time, faculty members need to be aware not to overwhelm students with too many course activities (Northrup, 2002).

When online courses were first developed in the early to mid-1990s, communication between online faculty and students was minimal (Boshier et al., 1997); however, the expansion of technology and increased possibilities for creating interactive online courses were foreshadowed from the beginning (Zenor, 1996). In the late 1990s, the addition of web-based course management software, such as Blackboard® and WebCT®, provided opportunities for faculty to implement more dialogue between students and themselves, as well between and among students (Rovai & Barnum, 2003). Using Blackboard, faculty can post an announcement and e-mail it to all students with only two clicks. They can post information about themselves, enable students to discuss course topics, complete live chat sessions, design templates that enable students to visualize all current and future content, form group pages, post-surveys and quizzes, link internal and/or external web sites, show pictures, and download video. Instructors have more resources to engage students and enhance the learning process. Faculty can create lessons that may include spoken words corresponding with text. Camtasia®, for example, allows visual learners to see text on their computer monitor while listening to the audio via the computer speakers. Instructors may develop more interactive visual aids and activities via the technology software Softchalk, and those wishing to engage students in live discussions may use Adobe Connect Pro. New technological advances continue to be developed, and many online faculty members are attempting to keep pace so that they can provide the best learning environment for their students. Faculty members have endless possibilities for creating interactive online courses

for students (Dolloph, 2007) and implementing some of these and/or other engaging activities enhances students' sense of community and course success (Liu et al., 2007; Russo & Benson, 2005).

Purpose of the Study

In a face-to-face classroom setting, faculty can actually see if students are engaged in the learning process through verbal and nonverbal communication. Instructors can sense whether students are forming a sense of community and/or learning course material. Faculty members also have opportunities to “visit” with students before or after class to discuss various topics. In the online setting, faculty members never see the vast majority of students. Receiving information from online students about their perceptions provides information to faculty that would likely be attained through verbal and/or visual cues in the face-to-face setting. Faculty may believe they know what students need to be successful in the online environment, but without seeing them or receiving student feedback, they cannot be certain. This research will not identify what students or faculty should or should not do within their online courses, but it will offer information that may be used by faculty to enhance their online teaching.

Several researchers have highlighted the importance of community development in online courses. Engaging students, making them feel connected, and developing interaction between and among students and faculty are found to support student success and retention (Berge, 1999; Northrup, 2002; Russo & Benson, 2005; Vesely et al., 2007; Vygotsky, 1978). However, minimal research has examined student perceptions of their sense of community at the beginning and end of online courses and compared them to their faculty members' perceptions of students' sense of community at the same points of the semester. Measuring students' perception helps identify what is most and least important to students (Herbert, 2006), helping faculty better

understand student needs. Faculty members are willing to modify online courses based on assessment and feedback (Dolloph, 2007); therefore, if student perceptions are provided to faculty, they will have feedback on what is believed to be effective (or not) within the online course environment. Having information on students' perceptions of their sense of community and the correlation of sense of community to final course grades may assist faculty in developing their online courses. Faculty will have the opportunity to compare their perceptions of students' sense of community to the student responses to determine how they differ. Liu et al. (2007) articulated that faculty have admitted needing assistance with developing a sense of community in online courses and understanding students' perceptions compared to their own may give them pertinent feedback to improve online instruction.

The researcher used students and faculty associated with an online liberal arts and sciences courses at a medium sized Virginia community college (VCC). The researcher did not highlight the individual performance of any faculty or students. The goals of this study were (a) to measure students' perceptions of their sense of community within their online courses during the semester, (b) to measure faculty members' perceptions of students' sense of community within their online courses during the semester, (c) to compare differences between the student perceptions and faculty perceptions of students' sense of community at two distinct points during the semester, and (d) to explore the relationship between students' sense of community and final course grades.

Significance of the Study

As part of the Virginia Community College System's (VCCS) *Achieve 2015* strategic plan, each of the 23 community colleges is expected to work towards increasing student enrollment and graduation rates (VCCS, 2010a). In addition, accrediting bodies expect their

member institutions to establish learning outcomes for each of their academics programs and to assess them appropriately. Regardless of course delivery modality, students are expected to learn curriculum (Southern Association, 2010). Overall, student success is lower in online courses than in the equivalent face-to-face courses within the VCCS (VCCS, 2007, 2008, 2009, 2010b), and research has attributed lower success rates to minimal personal interaction within courses (Berge, 1999; Carr, 2000) and lack of community development (Voos, 2003). Interaction and sense of community in online courses is directly associated with student learning (Outzts, 2006; Russo & Benson, 2005; Voos, 2007).

Although research has explored student perceptions of community within online courses and its impact on student learning (Liu et al., 2007; Outzts, 2006; Rovai, 2002a), little research has compared perceptions of sense of community at two different points during the same semester. Understanding students' perceptions of their sense of community and faculty members' perceptions of students' sense of community at two different stages during a semester will enable the researcher to determine if community exists and if it increases or declines over time. It is not clear when students begin feeling a sense of community during the course of a semester, if they do at all. Faculty perceptions of students' sense of community may be different from the student perceptions of their sense of community. Faculty will learn about students' perceptions of community and whether they agree with or differ from their own perceptions of students' sense of community at two points during a semester. In addition, they may see a correlation between students' sense of community to final course grades. When faculty members have pertinent information, they are more able to modify courses to improve teaching and learning (Dennen, Darabi, & Smith, 2007).

Previous research addresses the need for community involvement for learning to be at a maximum. This study reviewed 56 online courses at VCC to ascertain students' sense of community near the beginning and end of online courses as perceived by students and faculty associated with those classes. Additional information such as age range, race, course, number of completed online courses, and enrollment/employment status was requested to explore differences between and among students and faculty. The researcher used t-tests or ANOVA statistical tests to explore differences in score means between the two groups, and correlation coefficients to correlate students' sense of community with final course grades.

Research Questions

When students feel a sense of community within an online course, they often perceive a higher level of learning. They believe that they understand the material because they are more engaged in the learning process (Russo & Benson, 2005). Students participating in online classes who lack a feeling of community involvement may develop a sense of "isolation" and are more prone to drop out (Kerka, 1996; Slagter van Tryon & Bishop, 2009). The primary focus needs to be placed on learning, and students are more likely to learn when they interact among themselves. In addition, research suggests students who actively participate in the learning process are likely to perform better than those students who do not actively participate (Ullah & Wilson, 2007). The researcher wanted to learn if students and faculty members perceived that students' sense of community changed from early in the semester to near the end of term. It was also important to determine if there was a significant correlation between students' sense of community to their final course grades. Therefore, the following research questions guided this study:

1. Do student perceptions of their sense of community within their online courses change during the semester?
2. Do faculty perceptions of students' sense of community within their online courses change during the semester?
3. What are the differences between student perceptions and faculty perceptions of students' sense of community at two distinct times of the semester?
4. Is there a correlation between students' sense of community and final course grades?

For each research question, a comparison of age, gender, race, number of completed online courses, and enrollment status for students and employment status for faculty were assessed. The differences in student and faculty perceptions of students' sense of community within the online courses used in this study, which included biology, communication studies, English composition, English literature, geography, history, humanities, mathematics, philosophy, political science, psychology, and sociology were also examined.

Relationship to Community College Leadership

Online learning is growing at a substantially faster rate than traditional face-to-face courses, and 3 in 10 students are now enrolled in at least one course online (Allen & Seamen, 2010a). Courses offered at a distance provide students choices as to where they enroll because students are no longer required to register at their local community college and may instead choose any location offering the class online. Students who have a positive learning experience are more likely to enroll in future courses at that institution, leading to higher retention and graduation rates. Students are more likely to learn when they feel engaged and connected within the course. College administrators within the VCCS must pay careful attention to student success because the five-year strategic plan states the number of graduates will increase (VCCS, 2010a).

Research demonstrates that sense of community in online courses enhances student success. If students and/or faculty do not perceive a sense of community within their online courses, then it is more likely that those disconnected students will not succeed. This data is not to pinpoint faculty members who are not teaching well online; rather, it is to inform faculty about student perceptions of their sense of community within their online courses so that they may bolster community (if necessary) to enhance student success.

Overview of Methodology

The researcher used a non-experimental pre-survey/post-survey design to respond to research questions one and two, a comparative design to address research question three, and a correlational research design to answer research question four. A modified version of the Classroom Community Scale, an assessment tool measuring students' sense of community within courses was used for this study (Rovai, 2002b). Additional questions were asked to gather demographic data, gauge students' use of technology, understand students' perceptions of distance learning and technology, and learn how they access technology. The student survey questions are included in Appendix A. A modified version of the Classroom Community Scale was also used to assess faculty members' perceptions of students' sense of community. Additional questions were asked to gather demographic data, learn faculty viewpoints on students' perceptions of distance learning, and gauge course activities used within their online courses. The faculty survey questions are included in Appendix B. The survey enabled the researcher to determine sense of community, as well as its impact on perceptions of student learning and levels of connectedness. Students and faculty completed the scale at two points during the semester (January and April), and only students and faculty completing the scale on both occasions were used to determine differences in sense of community perceptions at the two

points of the semester. Scores from the valid surveys collected in April were used to determine if a correlation existed between students' sense of community and their final course grades. Rovai used Cronbach's coefficient alpha to determine reliability of the survey, and the researcher used it to determine reliability for students and faculty in this study too (Rovai, 2002b). The researcher obtained permission via phone conversation from the instrument's developer for its use during this study (A. Rovai, personal communication, May 7, 2008).

Limitations

Limitations are uncontrollable factors which have potential to influence a study (Ellis & Levy, 2009). The potential for flaws exists in all research, and the researcher attempted to minimize the deficiencies by limiting the threats to internal and external validity. The following issues may have negatively impacted this research. Students and/or faculty could have had an individual experience just prior to the scale being released, whether positive or negative, that may have impacted their overall perception of community. Students and faculty were asked to complete the same scale two times, and some faculty and students may have answered questions in April in the same way they answered in January, without consideration of their current perceptions. Also, asking students and faculty to complete the same survey on two occasions could have led to a lower response rate. Finally, the researcher is an administrator at the institution being studied, and although he does not supervise any of the faculty or courses involved in the study, there may have been perceptions that negative responses would be punitive to the responder.

Delimitations

There need to be boundaries in any research because it is not possible for a person to manage all aspects of a broad topic such as sense of community within a distance learning

environment. A delimitation helps define the boundaries because it explains what will not be studied (Ellis & Levy, 2009). This study focused on student and faculty perceptions of students' sense of community within arts and sciences online courses at only one community college in Virginia. This study did not offer to review the subject more broadly throughout the VCCS or around the nation.

Conclusion

Although not all students desire a sense of community in online courses (Cameron et al., 2009; Liu et al., 2007), having a sense of community is important for student success and learning (Liu et al., 2007; Outzts, 2006; Rovai, 2002a). When instructors interact with students, and students have opportunities to communicate openly with one another, these interactions create a learning community for students to learn and grow (Chickering & Gamson, 1987; Vesely et al., 2007). Students use virtual interaction as shown by the immense popularity of interactive social networking web sites such as MySpace.com (Vesely et al., 2007), Facebook, and Friendster (Gross & Acquisti 2006). Currently, students have numerous ways of sharing information, including Flickr and Picassa for photos, YouTube for video, I-tunes for music, and Twitter for brief Blogs (Ashlock, 2009). Interactive web sites can help students ease any anxiety about coursework and assist with the development of an online community (Eberhardt, 2007), but designers need to understand all of the choices available to students (Ashlock, 2009). Students want online faculty to be visible and directly involved with their learning, and they want to know faculty expectations and to have constant and consistent communication (Young, 2006). Student success occurs when students have a clear understanding of expectations and requirements, garner support when needed from college personnel, receive timely

communication from faculty, and engage with one another in the learning process (Tinto, Russo, & Kadel, 1994; Akyol et al., 2009).

Understanding students' sense of community and faculty members' perceptions of students' sense of community at two different stages during an academic semester enabled the researcher to determine whether or not a perceived sense of community existed and whether it increased or declined from the beginning to the end of the semester. It is not clear when students begin perceiving a sense of community during the course of a semester, if they do at all. The differences between faculty and student perceptions of students' sense of community may be large or small, but it is important to know what they are so faculty may have feedback useful for assessing their courses and modifying them as they deem necessary. In addition, it is important to address if a significant correlation existed between students' sense of community and final course grades. When faculty members have pertinent information, they are more able to modify courses so that teaching and learning can dramatically improve (Dennen et al., 2007). Knowing about student and faculty perceptions of students' sense of community and any significant correlation between students' sense of community and final course grades may help provide information for improving online course success.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter provides a review of the research pertaining to the development of community within online courses. The first section provides an overview of online learning and then provides a description of community, the concept of connectedness, experience, and stages leading to a sense of community. The second section includes teaching practices associated with online learning, many of which include developing sense of community. The third section discusses student learning and grades, and the last section pertains to course activities. Each section ends with a summary and critique.

Overview of Online Learning

The percentage of online students continues to grow at a significantly faster rate than face-to-face instruction. Over five and a half million college students (nearly 30% of all college students) are now enrolled in online courses (Allen & Seaman, 2010a). Some people need and want to attain a college education but simply cannot leave their jobs and/or families to complete a four-year degree. The advent of online learning provides students with more opportunities to complete courses and earn degrees, and online courses are intended to enable adults with work, family, and social commitments the opportunities to complete their education. In fact, many online learners are older than traditional college students and have jobs and families (Simonson, Smaldino, Albright, & Zvacek, 2003). The “common online student” is 23, married with children, and working full-time (Tanner et. al., 2009). The flexible scheduling of asynchronous distance learning classes enables students to meet their hectic schedules because they do not have designated times when they must participate. Students may “attend class” online at any time during the day or evening to complete course requirements. For many students, completing

courses at a distance is their only option to enroll in higher education and eventually earn a college degree.

Sense of Community

Definitions. The literature includes several definitions of community within an educational environment. Rovai (2002a) described community within an educational environment as enhanced cohesion among students. Students develop a sense of obligation to assist each other in meeting the outcomes of the course. McMillan and Chavis (1986) suggested community develops when students feel attached to one another. Goal completion is more likely when learners commit to working together and comprehend that their participation is important to the overall success of a course. Motteram and Forrester (2005) defined the online community as a place where students develop support systems and engage with other students in group projects fostering collaborative, interactive learning. What ties these definitions together is the connection between and among people.

Connectedness. As Maslow articulated in his “Hierarchy of Needs”, people need to belong to groups and often identify with more than one. Individuals are part of families, schools, churches, athletic teams, and/or work teams. Students are part of the educational community, and each class is essentially its own group. At least two-thirds of group members in an online course want classmates to be aware of their presence, develop an identity with colleagues, and know other group members (Cameron et al., 2009). Within each learning community, students generally expect to feel part of the group, trust one another, and learn from those within the confines of the course. In a study of online graduate courses, 90% of faculty members and 85% of students believed that being part of a learning community enhanced student learning, and that community development in online courses was important (Vesely et al., 2007).

Students want the opportunity to manage their own learning and receive timely input and support from their faculty (Northrup, 2002). They want to be challenged, have some flexibility, and engage with colleagues and faculty while learning the course material, and students' desire faculty who communicate openly and promptly with them (Young, 2006). A sense of community allows students to learn from one another, build a professional relationship, and gather support beyond the faculty member. Interpersonal communication theory dictates that people have common need for inclusion, control, and affection (Adler & Towne, 1996). Students want a sense of command either through their leadership or that of others, and they desire a trusting and caring online setting. Brown (2001) articulated that online students believe they are responsible not only for their own learning but also for the learning of classmates. Based on the review of several asynchronous online graduate level education courses, Brown established three levels of community:

1. Students made friends with their online classmates
2. Students felt that they were members of an exclusive group because only they were formulating ideas via the discussion board threads.
3. Students felt camaraderie and truly formed bonds with one another.

Some students and faculty do not desire a sense of community within online courses. These individuals want to acquire the knowledge desired and not be involved with interactive activities among peers (Brown, 2001; Cameron et al., 2009). Inman, Kerwin, and Mayes (2008) in a review of 11 community college online courses found student interaction with course activities and materials more of a significant predictor of student satisfaction than direct interaction from a faculty member. In a study by Liu et al. (2007), online students did not desire to join online communities and participate in group activities; however, in that same study,

researchers found positive correlations between students' participation in a learning community and course engagement, learning, and satisfaction.

Faculty members believe that creating an online atmosphere where students can foster relationships with one another is most important (Vesely et al., 2007). Furthermore, instructors must make a conscious effort to develop a community environment. Cameron et al. (2009) believed that faculty members need to foster more collaborative activities earlier in an online course to assist students' understanding of its importance and help them build relationships with one another. Rodriguez and Nash (2004) found that students need constant communication from staff and faculty, although they do not always desire constant interaction. Marzelli and Dicker (2006) were surprised at how students clamor for community development in online courses, especially when students in face-to-face courses are more motivated when class is dismissed early.

Faculty members need to be mindful, however, not to overwhelm students with too many course activities in the attempt to increase connection (Northrup, 2002). Too many activities can cause students to feel frustrated and may overwhelm them with a burdensome number of assignments to complete (Berge, 1999; Northrup, 2002), which may result in some students not being able to manage the workload. However, online students may feel disconnected and/or alone because they feel isolated from the professor and lack communication with instructors and fellow students (Besser & Donahue, 1996; Kerka, 1996; Slagter van Tryon & Bishop, 2009; Twigg, 1997). Students who fail to engage with peers within a classroom environment are less likely to succeed (Gibbs, 1995; Vesely et al., 2007); in fact, they are more prone to be unmotivated to learn and to have psychological deficiencies (Gibbs). Voos (2003) suggested that students are more prone to leave distance courses if they do not feel a sense of community and if

coursework is not related to their personal or professional ambitions (Park & Choi, 2009).

Therefore, it is important to find a balance for students to be able to manage the online material (Northrup, 2002). Students want to develop relationships with their faculty and peers, and these relationships may in turn lead to more positive learning experiences (Liu, Magjuka, Bonk, & Lee, 2007; Tinto, 1993).

Interaction that fosters interpersonal relationships in addition to course material is important. When students share personal information, they often develop trust, strengthening the overall perception of community (Rovai, 2002a). Russo and Benson (2005) determined that community development among students is more important than student-to-faculty interaction, although the latter is important to student success as well. Tinto (1975) articulated that students with developed relationships at the institution are more likely to remain enrolled. Therefore, a successful learning community requires more than a web site and instructors to manage it (Baek & Schwen, 2006); a successful learning community requires faculty to use instructional methods that engage learners and encourage interaction (Colachico, 2007; Dede, 1996) in moderation (Dennen, 2005).

Experience with online courses. In comparing the perceptions of faculty and students who had yet to participate in online study, Osborne, Kriese, Tobey, and Johnson (2009) determined that faculty members believe students learn less in internet classes, more time is required in internet courses, communication between and among faculty and students is not as evident, procrastinators will not succeed, and students enroll in online courses due to the “easiness” of the classes. When looking at perceptions of those who had completed or taught online courses, the researchers determined that faculty members are still more likely to say more time is required, procrastinators will not succeed, and students enroll in online courses due to the

“easiness” of the classes. However, several faculty-to-student differences disappeared including the perception that students learn less, perception that internet communications are less effective, and perception that more problems occur. An important purpose for reviewing faculty and student perceptions is to examine differences between faculty and students having experience with online instruction compared to those without experience.

Many faculty members were skeptical about the concept of teaching online when it first became prevalent in the mid 1990's, and some still are today. At Lake Superior Community College in Minnesota, full-time faculty members were concerned about the quality of online instruction because part-time faculty members were hired to teach the online courses. Leery faculty members did not believe that online instruction could equate to classroom instruction. They did not think it was possible for the material in their courses to be taught online, and they were concerned that their connections with students would be minimized. Further, some were concerned about the complexity of the technology and the time required preparing and presenting course information (Foster, 2003). Students with no online experience felt that they would not enjoy or be as successful completing online courses; however, in the same study, Muilenburg & Berge (2005) determined that two-thirds of students having completed an online course enjoyed studying online and had a positive learning experience. After teaching online for the first time, faculty developed a stronger sense of student learning and felt more positively about the experience than first anticipated (Osbourne et al., 2009). Gibson (2005) initially believed that online learning was impersonal and not conducive to cohesion; however, he discovered a community of learners who trusted one another by the end of an online course.

Stages. Community development enhances during the semester (Akyol et al., 2009), and following Maslow's theory of hierarchical needs, Waltonen-Moore, Stuart, Newton, Oswald, and

Varonis (2006) identified five stages for students' community development: introduction, identification, interaction, involvement, and inquiry. In the introduction stage students need time to introduce themselves to one another as they look for collaboration in the course. They realize commonalities among one another. This realization leads to the identification stage when students begin to feel more at ease and become more open with one another. Identification leads to interaction. Students start to share ideas related to the course content and have open dialogue with each other. The students start to feel very comfortable with one another. Interaction leads to the involvement stage where students actually want to work together. They read each other's discussion postings and comment on them and become more active in the learning process. In the final stage of inquiry, the students are well versed with content and are working to apply the material in real world application. The instructor's role is to facilitate the discussions and lead the students through the course. The authors conclude that a discussion board can make a valuable difference and should be strongly considered by those teaching online. Students believe that a sense of community allows them to have better "in-class" relationships and instructors, with all of the technology available to them (Slagter van Tryon & Bishop, 2009), should be proactive in creating community development from the very beginning of a course (Akyol et al., 2009).

Summary and critique. Although the definitions of community vary, developing a connection between and among people is at the core (McMillan & Chavis, 1986; Motteram & Forrester, 2005; Rovai, 2002a). Overall, students like to be associated within groups, and those failing to engage with classmates within the online environment are less likely to succeed (Gibbs, 1995; Ivankova & Stick, 2005; Markel, 2001; Tinto et. al, 1994; Vesely et al., 2007). Students and faculty need opportunities to engage with one another in order to develop a sense of

community (Waltonen-Moore, 2006). The importance of a sense of community in online courses is evident, but community may not be created immediately. People want to belong to groups (Wilson, 2001), and connectedness is a key component for online learning (Gibbs, 1995; Motteram & Forrester, 2005). Missing from the research was an exploration of perceptual differences between and among students and faculty related to their sense of community in their individual courses at two distinct points during a semester. For faculty and students to generate a stronger sense of community, understanding faculty and student perceptions of its existence was a good starting point (Caliskan, 2009).

Even with the significant growth in online study over the last eight years (Allen & Seamen, 2010a), faculty may not be fully in tune with the online movement (Foster, 2003; Osbourne et al., 2009). Assessing the student and faculty perceptions of students' sense of community is important to develop in-service programs that highlight similarities and differences. Perreault, Waldman, Alexander, and Zhao (2008) indicated that institutions need to continue offering professional development for online faculty and that faculty members should be encouraged to attend. The development of community has been used to explain increased student success, but none of the studies identified student and faculty perceptions of community within the same online courses. Faculty members have admitted that they are not aware of the sense of community in their courses or how to create it (Liu et al., 2007), and this research provides data on student and faculty perceptions of students' sense of community. Inman et al. (2008) suggested that faculty should receive feedback from students to understand their perceptions of the online course.

Teaching

In an examination of the literature over the previous 10 years, Darabi et al. (2006) examined necessary instructor competencies required to teach online. Critical elements for course success include communicating with students, engaging students in discussions, interacting with them, and providing timely feedback. They determined that interaction was a fundamental component of distance education that instructors should engage regularly. Students need to interact with one another and their faculty for a successful online course (Colachico, 2007; Hill, Raven, & Han, 2002). In addition, online students are satisfied when a community is created allowing them to share information and be open with one another. The technology available to faculty allows them to engage the students, and one faculty member believes that his online students developed a stronger sense of community because of the technology (Finley, Desmet, & Evans, 2004). A visibly active instructor and a quality course design lead to students' sense of connectedness and learning (Shea, Swan, Li, & Pickett, 2005). However, the delivery method (online, hybrid, or traditional) is not believed to be as significant as the instructional styles of the faculty member (Rovai & Barnum, 2003) or as the course design and quality of faculty (Shank, 2005). Online teaching is different from face-to-face instruction, but that does not mean it is worse (or better for that matter). Certainly, teaching any course has complexities, and moving to a new method of instruction is challenging, but Foshay (2002) strongly advocated that distance learning courses should not be a duplication of the face-to-face modality.

The eight higher education accrediting boards for higher education in the United States review syllabi, course materials, and levels of community to determine how well institutions meet expectations for quality instruction, including distance learning. For distance learning courses, reviewers examine syllabi to determine the level of interaction in online courses, looking for discussion board responsibilities, group projects, and peer editing in particular. The

accrediting bodies do not want to see that all of the online courses have identical templates because faculty should have different methods for providing instruction. Information should not be imported from face-to-face instruction into an online course without consideration of its applicability. Instead, materials should be updated often so that students receive the most up-to-date information. They should include community development activities that lead to enhanced interaction between students and faculty within online courses (U.S. Department of Education, 2006).

Several researchers identified best practices for online teaching effectiveness, and each emphasized the importance of community (Gamson, 1991; Legon, 2006; Lorenzo & Moore, 2002; Paloff & Pratt, 2007). Vesely et al (2007) and Blakelock & Smith (2006) cited Gamson's (1991) list of seven principles of good practice in undergraduate education as a model for course developers to create quality online courses. The principles include encouraging student-faculty contact, expecting students to work together, seeking active learning, giving quick responses, emphasizing time on task, communicating high expectations, and respecting diverse talents and ways of learning. Students desire what they typically garner in face-to-face courses, which is interaction between and among students and faculty (Mandernach, Gonzales, & Garrett, 2006), and the communication between these groups increases students' involvement and motivation within a course (Dunlap & Lowenthal, 2009). Students are expected to think critically and learn through the management of real-life issues, and faculty must create a community environment for students to have those experiences within an online setting (Bosch et al., 2008).

The Quality Matters (QM) rubric for online courses is designed to improve teaching and learning via peer review. It includes key characteristics for online faculty to monitor various attributes expected within online courses. QM principles highlight the importance of interaction

in online courses by articulating (a) interaction should occur between faculty-student, student-student, and student-content; (b) faculty should have defined timelines for responding to students communication and coursework; (c) expectations for course communications are defined to students; (d) the instructor is an active participant within the course; and (e) the technology encourages interaction and helps students become more engaged learners (Legon, 2006).

The Sloan Foundation developed five pillars for online education, three of which included the importance of connectedness and learning within the online learning environment (Lorenzo & Moore, 2002). Lorenzo and Moore identified methods for enhancing learning effectiveness, student satisfaction, and faculty satisfaction. It is important for students to feel that they can engage with each other, with faculty, and with course materials. Students desire communication from their teachers and expect college services to assist them with their learning. Paloff and Pratt (2007) provided sample guidelines to assist faculty with developing expectations for their online courses. Faculty should (a) create community; (b) communicate regularly with students; (c) set clear participation rules but allow students to help formulate them; (d) develop communication parameters whether it is using e-mail, phone, and/or discussion boards; (e) set a timeframe for responding to students; and (g) provide detailed instructions on how to complete coursework. Tinto (2004) identified student success factors (regardless of learning modality), and they included engaging students with other students, faculty, and staff, as well as faculty providing consistent feedback to students.

Much research has been conducted in recent years on the community of inquiry (CoI) framework. Developed by Garrison, Anderson, and Archer (2000), the CoI examines teaching, social, and cognitive presence within the online learning environment. Teaching presence relates to how an instructor fosters a community via the course design and delivery of course content,

social presence correlates to the connectedness students feel toward one another, and cognitive presence pertains to how students are able to develop their learning through course experiences (Arbaugh, Bangert, & Cleveland-Innes, 2010). Using the CoI, Garrison, Cleveland-Innes, and Fung (2010) determined in their study of two programs and 14 courses that when students perceive an instructor has a high level of presence within an online course, it is more likely students will also perceive higher cognitive and social presences in the same class.

Students enrolled in online courses via the State University of New York (SUNY) have higher satisfaction rates and levels of learning when they believe instructors maintain high levels of interaction with them and fellow students communicate often with one another (Bosch et al., 2008). Slagter van Tryon and Bishop (2009) encourage faculty to have regular correspondence with students to enhance community perceptions and increase students' levels of connectedness to their faculty, peers, and course. Faculty can help students by providing information on how they should be progressing. Although this information may be written in an outline or assignment sheet, personal communication may enhance students' perception of connectedness to the online environment. Students become frustrated when they perceive the instructor is absent, does not provide clear directions, and/or has minimal contact (Anderson, Rourke, Garrison, & Archer, 2001).

Institutions should be "learner-focused," and faculty members need to provide lessons that are interactive and engaging to maximize student learning (Nitsch, 2003). Faculty members are the catalysts to developing a sense of community via their course designs, genuine care for students, and instructional methods (Rovai & Wighting, 2005). Students should have timely responses from faculty, and they need opportunities to learn about one another and develop a community of learners (Dahl, 2004). Faculty members who contact students regularly and

respond to requests promptly are typically more successful teachers (Carr, 2000). Young (2006) surveyed 199 online students and determined that it is important for faculty to create an atmosphere where students may actively collaborate and interact with one another, the instructor, and course material. Students need to be involved in the learning activities, and faculty members are responsible for assuring that participation. Faculty response and feedback are important to students (Gahungu, Dereshiwsky, & Moan, 2006), and feedback is vital to students' success within online courses (Mandernach et al., 2006). Faculty must provide feedback and engage students with practical learning activities (Bocchi, Eastman, & Swift, 2004).

Students also need guidelines on how to maneuver through the online materials so that they are best prepared for success. In a survey of over 300 online students, 28% of the over 100 non-completers stated that they withdrew due to the poor instructional course design and poor levels of communication (Aragon & Johnson, 2008). As a result, the researchers suggested that faculty members clearly articulate communication expectations throughout the course. Instructors should ensure that all materials are accessible, including checking web links and ensuring that they work (Foshay, 2002). Instructors should set clear expectations on when assignments are due and how feedback will be provided. Feedback and communication are the most important faculty benchmarks because students want more than a grade; they want to know the positives and negatives within an assignment to gain a full understanding of their work. Faculty should communicate openly with students about how correspondence will be conducted to avoid perceptions of being reclusive (Aragon & Johnson, 2008).

Summary and critique. Students desire class interaction although there are some students who simply want to complete courses and not be engaged in the material (Cameron et al., 2009), but that is evident within all instructional modalities. Students appreciate the

asynchronous format which allows them to work, be with family, and complete a degree program, but they still want to be challenged. Although busy in their personal lives, many students want a feeling of community within their online course work (Brown, 2001; Cameron et al., 2009). One instructor's style and methods may be distinctly different from another professor's (U.S. Department of Education, 2006), but it is clear that students learn more readily when faculty are responsive and openly communicate with students (Richardson & Swan, 2003). The literature focuses predominantly on what should happen and does not address what is actually occurring in the online classroom from the perspectives of the students and faculty members at two distinct points during a semester. Faculty must foster a community environment to enhance student success, and to improve the perceptions of sense of community within their courses, faculty need to be aware of them.

Faculty members play a key role in the development of community within online courses. An online course is more than having a web site, book, and exams: faculty need to engage students in the learning process (Colachio, 2007; Hill et al., 2002; Pascarella & Terenzini, 1980; Slagter van Tryon & Bishop, 2009). Several researchers devised strategies for effective online teaching, and each emphasized the importance of community (Gamson, 1991; Legon, 2006; Lorenzo & Moore, 2002; Paloff & Pratt, 2007), but faculty members have limited evidence as to whether or not community actually exists in their classes. Having an understanding of student and faculty perceptions at two points during a semester will enable faculty to re-examine their courses based on statistical data and not their opinion of what is occurring. Faculty have admitted that they need assistance with developing a sense of community (Liu et al., 2007), and having information on how students' sense of community is perceived by students and faculty within online courses is an excellent starting point. Measuring students' perception helps identify what

is most and least important to them (Herbert, 2006). Professional development for online faculty should inform them about the student and faculty perceptions of sense of community in VCC's online courses. Although this research did not identify root causes to high or low levels of sense of community, professional development sessions may foster methods for developing presence in the online environment. Institutions should see significant enhancements when the level of student sense of community is increased (Shea et al., 2005).

Accrediting bodies are reviewing online courses to assure that students have opportunities for interaction and course engagement. Although previous research suggests using best practices such as encouraging student-faculty contact, expecting students to work together, seeking active learning, and giving quick responses (Gamson, 1991; Vesely et. al., 2007; Blakelock & Smith, 2006), it focuses on what faculty should do as best practices for online teaching and learning. It does not state whether the best practices are actually occurring within the online environment. Faculty must be aware of the importance of sense of community and work to create opportunities for student to student and student to faculty communication. Faculty members need to create positive learning environments, whether online or face-to-face because the research states that community building creates a positive learning environment. Faculty members need feedback about what is actually occurring in their courses to make certain that they are building a sense of community.

Learning and Grades

Faculty members create the academic environment in which students can learn and prosper (Vesely et al., 2007). When students are actively involved in the learning process with faculty, they feel engaged and the perception of learning increases. Students participate more actively when they know that the professor will respond to them. In a study of 2,036 students

over 32 higher education institutions in New York, 21 of which were community colleges, Shea et al. (2005) found that a sense of community is imperative for successful, well groomed online programs. Students feel a stronger sense of learning when faculty members are active within the online learning environment (Anderson, 2004; Outzts, 2006), and Swan (2002) determined that students who feel a strong sense of interaction with their faculty have higher levels of student satisfaction and perceived learning. Students who believe that their faculty members have minimal interaction with them are least satisfied and have lower perceptions of learning. Good instructors should consistently modify their courses regardless of their chosen teaching method, and overall, faculty members are willing to modify online courses based on assessment and feedback (Dolloph, 2007).

Picciano (2002), while studying a graduate class of 23 students, found that the perception of community development in the course led to a higher perception of student learning. Eom, Wen, and Ashill (2006) determined that faculty feedback was a significant indicator for 397 students to meet learning outcomes, more so than students' motivation to enroll in the online courses. Students learn more when they are satisfied with the availability of a faculty member (Liu et al., 2007), and when faculty members are actively involved, students are more engaged and feel a stronger sense of learning. More specifically, Blignaut and Trollip (2003) determined that faculty use of discussion boards increases student learning. Quality interaction will challenge students and keep them motivated (Northrup, 2002) and is significantly correlated to students' perception of learning in the course (Marks, Sibley, & Arbaugh, 2005). Students believe that they learn more when they feel a higher sense of connectedness between and among classmates (Richardson & Swan, 2003), and when students interact with each other and share ideas and concepts related to course topics, their level of learning increases (Bull, Kimball, &

Stansberry, 1998). Students who are more engaged with discussion board postings, reading, and writing have significantly higher perceptions of learning in online courses than those not regularly participating (Rovai & Barnum, 2003). Learning should be a collaborative effort between and among students and faculty and not just an individual effort. When students have opportunities to work together within a learning environment, they are more likely to have enhanced understanding of the material, and they can learn different perspectives and delve deeper into the subject matter (Hesse, 2005). Northrup's (2002) study of 52 graduate students corroborated research by Berge (1999) highlighting the importance of interaction to students' learning. Sadera, Robertson, and Midon (2009) reported a positive correlation between students' sense of community and their sense of learning in the course.

Tinto et al. (1994) determined that students who engage in a cohesive, supportive learning group tend to develop relationships that lead to an enhanced academic experience. Within the Coordinated Studies Program, a learning community established at Seattle Central Community College, students are introduced to a variety of learning perspectives, and students have a higher perception of learning than those who do not. Examining 22 graduate students located in various parts of the United States, Russo and Benson (2005) determined that students' perception of learning directly relates to their self-assigned grade for the course. Their level of presence in the class positively correlated to the self-assigned grade and teacher's assessment of their performance. Students felt they were able to correspond often with one another and the faculty member, and this correspondence significantly corresponded with positive feelings about the course.

Student grades may not be a strong indicator to determine if students learned if any points are assigned for attendance, extra credit, and/or participation because they are not directly related

to measuring learning outcomes. Rovai and Barnum (2003) argued that learning is based more on students' perceptions of their enhanced knowledge. Students' perception of learning can be related to many factors out of a professor's control. Students' level of motivation, desire to learn, career goals, understanding of technology, course grade, and much more can impact how much learning is believed to have taken place.

Students who reported having a strong sense of community believed that their grades were higher than those who did not (Russo & Benson, 2005). Morris, Finnegan, and Wu (2005) found that students had higher grades when having a higher rate of participation. Drouin (2008) determined that students' sense of community corresponded with student satisfaction; however, there was no correlation between students' sense of community and course grade. This corresponds with Picciano's (2002) findings of students' social presence not being correlated to a final exam grade. Defining student completion as D or better and non-completion as any other grade, Aragon and Johnson (2008) found no significant correlation between students' age or race on whether they completed the course or not. Completers were more likely to enroll in more online courses than the non-completers, and there was a significant difference in gender, with females performing better than males. Students having a higher GPA completed courses at a higher rate than those with a lower GPA. In another study, Rust (2006) found that a significant positive correlation existed between students e-mail and discussion board communications to their final grade for the course. Students' perceptions of the amount of interaction between and among students and faculty also had a significant positive correlation. Women tended to have a stronger sense of community than men, and there was a positive correlation of women's sense of community towards their learning (Rovai & Baker, 2005; Shea et al., 2005).

Summary and critique. Instructors play many roles, including but not limited to facilitator, encourager, and teacher (Paloff & Pratt, 2005). Developing a sense of community in online courses clearly enhances opportunities for student success and learning because both faculty and students find higher levels of perceived learning when community is imbedded within their online courses (Carr, 2000; Eom et al., 2006; Picciano, 2002; Shea et al., 2005). Studies have acknowledged that community development is paramount for enhancing student learning and grades, but limited evidence highlights students' sense of community to the grades they received for the class within a community college. Research examining grades and students' sense of community is conflicting. One study indicated a positive correlation (Morris et al., 2005) and another study showed no significant correlation (Drouin, 2008). Neither study, however, focused on community college students.

Online learning continues to grow at a rapid rate, and community colleges maintain the lead by enrolling over 50% of online students (Allen & Seamen, 2010b). Rovai (2002b) argued that student perception of learning is a prime indicator for determining if learning is evident. The VCCS currently uses grades as a measure for online success, and this research will determine if a significant correlation exists between students' sense of community to grades for the course. Understanding online students' sense of community in correlation to their grades in the course may help increase success rates because faculty will know whether or not a significant correlation exists.

Course Activities

Colachico (2007) articulated that it is possible for students to learn about one another and prosper as a result of sharing knowledge and expertise. Community development in online courses has led to fewer dropouts and a better connection between and among students (Liu et

al., 2007). Several strategies may be implemented to create a sense of community in the online environment. Faculty may have students' complete introductory announcements, student biographies, and/or video or audio recordings. Faculty and students may participate in the discussion boards, respond promptly to electronic communication, offer constructive feedback regularly, engage in group or individual conversations, and/or share personal information (Aragon, 2003). Effective online faculty members communicate regularly with students, present a complete course outline at the start of the class, participate in discussions, and present clearly defined expectations for successfully completing a course. Ineffective online instructors, according to students, do not respond to them and are inadequate in providing comments on coursework (Young, 2006).

Tello (2002) surveyed 1645 students enrolled in 76 fully online courses within the University of Massachusetts's community college system to determine why students continue enrolling in online courses. Students report having a better experience when faculty provide direct interaction, utilize e-mail, and maintain discussion boards. Eleven percent of students did not reenroll in classes because instructors did not communicate with them as expected. In another study, 28% of students did not successfully complete online courses due to perceptions of poor course design and/or lack of communication from the faculty (Aragon & Johnson, 2008). Discussion boards are a significant factor with students persisting in their online courses. Students actively engaged with classmates via discussion board postings feel more satisfied with the online course and have higher perceptions of learning (Tello). Markel (2001) believed that discussion forums allow students to maximize student learning in that they have an avenue to be directly involved in the course and provide and receive instant feedback. Having a purpose for

online discussion allows students to view it as a tool for learning rather than another assignment that must be completed (Mabrito, 2004/2005).

Santilli and Beck (2005) surveyed graduate faculty members teaching online courses through NOVA Southeastern University. Of the 47 respondents, 89% used discussion board and 78% used chat rooms. Faculty members spent the vast majority of their time communicating with students, preparing course materials, and assessing work. Faculty believed the most beneficial feature of the discussion board was student interaction and the second most important feature was faculty-to-student feedback. Those who did not use discussion boards used e-mail for communicating with students. Over half of the faculty respondents thought that the discussion board allowed them to create a community within the online learning environment.

The quality of engagement is as important (if not more so) than the quantity of interaction. In a study of 160 graduate students, timely response to students on assignments and other correspondence such as e-mail, consistent participation on discussion board postings, and clearly defined course requirements were the top three factors for online students (Dennen, 2007). Liu et al. (2007) determined that students active in a class community were more satisfied and more successful. A faculty member in Texas found his course completion rates catapult 28% (from 62% to 90%) when he used chat discussions and e-mail. Instructors can work to build cohesion among the students by having practical learning assignments, opportunities for discussion and idea exchange, and course tools that are easy to navigate (Wilson, 2001). At Lesley University, faculty assign group projects within their online courses, forcing students to work together and allowing them to build stronger interpersonal relationships. Students sometimes prefer to complete group tasks without developing a sense of community, but it is believed that developing a sense of community is important for sustaining a successful group

(Cameron et al., 2009). Faculty consistency with the posting of course content and materials, consistent and constructive feedback from instructors to students, and a discussion board that promotes thoughtful, engaging interaction are the most influential aspects for a successful online class (Swan et al., 2000).

Students desire regular interaction and consistent feedback, but as Derrick (2003) and Bosch et al. (2008) exclaimed, education should be designed so that students are responsible for their learning which results when they are given opportunities for engagement, collaboration, and collegiality. Experienced online instructors work to engage students in community development early in the semester because sharing personal information helps “break the ice” and makes students more comfortable as coursework commences (Anderson, 2004). Developing a sense of community can begin at the very beginning of a course with students sharing personal information and seeing commonalities amongst one another (Ivankova & Stick, 2005). Faculty should provide ice breakers for students to get to know one another and consistently update their web sites with current course information (Foshay, 2002). A balance needs to be established so that the right amount of interaction is developed within the online course. Too much interactive work required of the student may become burdensome but too few interactive requirements may cause feelings of isolation (Mandernach et al., 2006).

Student communication via discussion board postings does not automatically generate a sense of community, but it is a viable instructional method (Waltonen-Moore et. al., 2006). Faculty and students have meaningful learning experiences when there is evidence of students and faculty actively responding to one another (Lorenzo & Moore, 2002), and Astin (1984) articulated that student interaction with their faculty has significant implications on their overall satisfaction. Aviv’s (2000) study with undergraduate students determined that asynchronous

discussion board postings helped develop rapport among students in the class, and Caverly & MacDonald (2002) suggested developing “positive interdependence” where group work is a norm and student success is based on group success. Koh and Hill (2009) determined that students found group work in the online arena to be worthwhile, but it did not lead to a perceived sense of community. Rovai and Gallien (2005) in a study of predominantly African American students determined that they should have more opportunities for group work within an online course, which they noted would benefit all students, not just African Americans.

Doctoral students enrolled in an administrative issues in higher education course at the University of Nebraska benefit from knowing one another online, and they value sharing personal and professional experiences. Students learn about one another via a participants section. They share personal experiences, and many students find the extra time to prepare thoughtful responses to the discussion board postings of others. The students are motivated and more engaged with the material. In face-to-face courses, responses to questions in class are expected immediately, but in asynchronous online courses, communication can actually be more in-depth and engaging than in the traditional classroom setting because students may take their time in devising responses (Ivankova & Stick, 2005).

Dahl (2004) made several recommendations to help increase retention within online courses. Students should know the resources they have available to them and have opportunities to get to know other students and develop peer relationships. Faculty should consistently assess student work at all levels and openly communicate with their students. Active engagement between faculty and students needs to be evident, and when students begin to falter, dialog should occur to help get them on the correct path. In a study by Frey, Alman, Barron, and Steffens (2004) only one student (due to health reasons) did not complete Pittsburgh’s library

science online program, and it is believed that others considering leaving the program were convinced to stay by their colleagues. Students supported one another, made each other accountable, and communicated often with each other. Students believed that they created the sense of community within each online course and not the program or the faculty. Therefore, having opportunities to meet one another and/or being assigned group projects are found to be helpful. Students want a support system when completing an online program, and they need to be satisfied with it as well (Lorenzetti, 2003).

In a survey of 120 students within online computer and communications online courses, it was determined that a positive correlation existed between students' sense of connectedness and use of e-mail in the course. However, there was no positive correlation to students' sense of community to chat room, study groups, or discussion boards (Sadera et al., 2009). Dawson (2006) determined that a positive correlation existed between students' sense of community and amount of e-mail, face-to-face encounters, and discussion board comments. Communicating via phone, chat, and text messaging were not significant factors to students' sense of community. In another study, students' sense of community was positively correlated with consistent course announcements and faculty feedback (Liu et al., 2007).

Summary and critique. Faculty can develop course activities that engage students within the online environment; however, there is limited evidence indicating which course activities significantly correlate to students' sense of community. Discussion forums and e-mail communication appear to be the most prevalent forms of course activity, but faculty may also use chat sessions, social media forums such as Facebook or Twitter, group projects, in-person meetings, phone, text messaging, and/or class introductions and ice breakers. When active correspondence exists between and among faculty and students, both groups are more satisfied

(Liu et al., 2007) and more likely to have a positive learning experience (Lorenzo & Moore, 2002). This study expanded the research by examining community college students' sense of community to determine which course activities students perceived as more important to their sense of community. Previous studies addressing correlations between students' sense of community and course activities were inconsistent and not conducted within a community college setting (Dawson, 2006; Liu, et al., 2007; & Sadara et al., 2009).

Conclusion

This chapter provided a review of the research pertaining to the development of community within online courses. The first section provided an overview of online learning and then provided a description of community, the concept of connectedness, experience, and stages leading to a sense of community. The second section included teaching practices associated with online learning, many of which include developing sense of community. The third section discussed student learning and grades, and the last section pertained to course activities. Each section ended with a summary and critique.

CHAPTER 3

METHOD

Research has espoused the importance of community development in online courses. Engaging students, making them feel connected, and developing interaction between and among students and faculty enhances student success (Berge, 1999; Caliskan, 2009; Northrup, 2002; Rovai, 2002a; Russo & Benson, 2005; Vesely et al., 2007; Vygotsky, 1978) and learning (Frederickson, Pickett, Shea, Pelz, & Swan, 2005). Although research has indicated that community development is important for student connectedness and learning, it has not clearly depicted whether students and faculty within the same online courses believe community actually exists within their online courses. This study explored student perceptions of students' sense of community and faculty perceptions of students' sense of community within their online courses at two points during an academic semester.

The goals of this study were (a) to measure students' perceptions of their sense of community within their online courses during the semester, (b) to measure faculty members' perceptions of students' sense of community within their online courses during the semester, (c) to compare differences between student and faculty perceptions of students' sense of community during two distinct points during the semester, and (d) to correlate students' sense of community with their final course grades. To examine student perceptions and faculty perceptions of students' sense of community within online courses, the researcher developed clear guidelines for completing the study. This chapter includes information about the research design, research questions, survey participants, instrumentation, data collection and analysis, limitations, delimitations, ethical protection of participants, and conclusion.

Research Design

This study used a non-experimental, pre-survey/post-survey design to examine student and faculty perceptions of students' sense of community at two distinct points in a semester, as well as to compare students' change in sense of community compared to final course grades. A comparative design to review pre-survey and post-survey differences between faculty and student perceptions was also used. The pre-survey/post-survey design enabled the researcher to measure change after a period of time (Dimitrov & Rumrill, 2003). The researcher assessed student and faculty perceptions of students' sense of community between weeks two and three and again between weeks 13 and 14. A comparative design is used by researchers to measure only one dependent variable (perceptions of community) and to examine differences of two or more groups (McMillan & Wergin, 1998). Differences between student perceptions and faculty perceptions of students' sense of community at the two different points during the semester were compared. Correlational research does not allow for an identification of cause; however, it can help researchers develop inferences on which variable may relate to another (Thompson, Diamond, McWilliam, Snyder, & Snyder, 2005).

Students and faculty members were neither manipulated nor controlled to determine differences; therefore, the non-experimental design was most appropriate. Using a non-experimental design allowed the researcher to examine differences between the perceptions of the two groups without manipulation of one group or the other. The researcher surveyed students and faculty about their perceptions of students' sense of community with questions that emphasized its impact on student learning and levels of connectedness. In addition, questions pertaining to demographics and activities within their respective online courses were asked.

Research Questions

The goal of this research was to examine student perceptions and faculty perceptions of students' sense of community at two distinct points during a semester and to determine if there was a correlation between students' sense of community and final course grades. This goal led the researcher to develop the following research questions:

1. Do student perceptions of their sense of community within their online courses change during the semester?
2. Do faculty perceptions of students' sense of community within their online courses change during the semester?
3. What are the differences between student and faculty perceptions of students' sense of community at two distinct times during the semester?
4. Is there a correlation between students' sense of community and final course grade?

Sample

Online courses within the arts and sciences division offered during the 15-week session at VCC were used for this research. Fifty-six online sections within the following 12 subject areas were used: biology, communication studies, English composition, English literature, geography, history, humanities, math, philosophy, political science, psychology, and sociology. A faculty member was assigned to each course, and the maximum enrollment was 30 and the minimum enrollment was eight (8). To survey students and faculty at VCC, the researcher needed access to the two groups. Per VCC procedure, the researcher requested and received permission from the college president (see Appendix C) to complete the study and gain access to students enrolled in online courses and faculty teaching online courses at VCC.

Instrumentation

A revised version of The Classroom Community Scale (Rovai, 2002b) was used to measure students' sense of community as perceived by students and faculty. The Classroom Community Scale measures sense of community within an educational setting and includes 20 total questions. Of the 20 questions, 10 explore feelings of connectedness, and the remaining 10 explore learning. This Likert-type scale provides five possible responses to each question: strongly agree, agree, neutral, disagree, and strongly disagree. For this study, the researcher removed the neutral category, therefore, changing the number of choices to four. For 10 questions, the scores ranged from one (strongly disagree) to four (strongly agree) with reverse scoring for the remaining 10 questions. The highest attainable score was 80, and the lowest possible score was 20. Connectedness was measured by adding the scores for the odd numbered questions, and the learning factor was determined by adding the scores for each of the even numbered questions. In his initial online community study in which he compared the sense of community of students enrolled within 28 online courses at a four-year university, Rovai (2002b) found significant differences. Students' sense of community varied among the different courses included in the study with some classes indicating a high sense of community and others a much lower sense of community.

Rovai assessed reliability for community and the two factors of connectedness and learning by using Cronbach's coefficient alpha. For community, Cronbach's coefficient measured .93; connectedness was .92; and learning was .87. Each of these scores equated to good reliability (Rovai, 2002b). The researcher used Cronbach's coefficient alpha to determine reliability in measuring VCC online students and faculty, using revised versions of Rovai's Classroom Community Scale. The reliability for the students and faculty pre-surveys and post-survey was good as evident in Table 1.

Table 1

Sense of Community Survey Cronbach's Co-efficient Alpha Scores

Scale	Student Pre-survey	Faculty Pre-survey	Student Post-survey	Faculty Post-survey
Sense of Community	.90	.92	.92	.90
Connectedness	.89	.87	.91	.87
Learning	.85	.88	.87	.83

Permission to use the Scale for this study was obtained by the researcher via phone conversation with the developer of the instrument (A. Rovai, personal communication, May 7, 2008). Additional student questions were asked to gather demographic data, gauge students use of technology, understand students' perceptions of distance learning and technology, understand impact of course activities, and learn how they access technology. Additional faculty questions were asked to gather demographic data, learn faculty viewpoints on students' perceptions of distance learning, and gauge course activities used within their online courses.

Data Collection

Students. In January 2011, the researcher e-mailed all students enrolled in 15-week online courses within online arts and science division courses at VCC (see Appendix D). This e-mail briefly explained the purpose of the research, described the Classroom Community Scale and additional questions, and requested their full participation. The survey was posted on student Blackboard shells (see Appendix E) after the last day to add a class (January 17), and it remained open for two weeks (weeks 2 and 3 of the 15-week semester). At the start of week 12 (April 4), the researcher e-mailed the same group of students (see Appendix F) requesting them to complete the survey again at the start of week 13 (April 10). The survey was redistributed to the same classes via their Blackboard shells (see Appendix G) on April 10 and remained active for two weeks (weeks 13 and 14 of the 16-week semester).

On each occasion, students were asked to include their VCC ID numbers, allowing the researcher to verify that students completed the survey at the beginning and end of the semester. If students could not remember their ID numbers, they were permitted to include their names. Students were asked to provide their age, gender, race, previous number of online courses completed, and enrollment status. In examining any perceptual differences comparing pre-survey to post-survey score means, the researcher used only scores from those students who completed the entire survey at both points of the semester. For each online course used in the study, grades were provided to the researcher by the Admissions and Records Office. Grades were identified by course and student ID number or student name. Aragon and Johnson (2008) defined course success as a grade of D or above, but for this study, student success was defined as student grades of A, B, C, or S, whereas, non-success was defined as student grades of D, F, W, R, and U. The VCCS measures course success by A, B, C, S, and since the institution used in this study (VCC) is one of the 23 colleges within the VCCS, the researcher used the same success measure for this study.

VCC offers two associate degrees that may be completed online; therefore, students may have six or more online courses in one semester. The directions for students clearly delineated that they should address each specific online course and not online courses in general. Since a student could have a sense of community in one course and not in another, the researcher believed that duplicated headcount was important for this study. The survey was configured for students to complete it online via SurveyMonkey, and the researcher posted it in each online course Blackboard site. The survey posted in each online class included the course and section number; therefore, students knew for which course they were providing their perceptions. An e-mail reminding students to complete the survey was sent during the period for which it was open

in January (see Appendix H) and April (see Appendix I). In the e-mails to faculty, the researcher asked faculty to encourage students to complete the survey through their courses.

Faculty. In January 2011, the researcher e-mailed faculty teaching students enrolled in 15-week online courses within the arts and science division at VCC (see Appendix J) asking them to answer questions from the modified version of the Classroom Community Scale and additional questions related to their course activities and students' perceptions of distance learning. The survey was directly e-mailed to faculty (see Appendix K) after the last day to add a class (January 17) and remained open for two weeks (weeks 2 and 3 of a 15-week semester). At the start of week 12 (April 4), the researcher e-mailed the same group of faculty (see Appendix L) requesting them to complete the Classroom Community Scale again at the start of week 13 (April 10). The scale was redistributed to faculty via their VCC e-mail account on April 10 (see Appendix M) of the academic semester and remained active for two weeks (weeks 13 and 14 of the 15-week semester).

On each occasion, the researcher asked faculty to include their VCC ID numbers. Receiving the faculty ID numbers allowed the researcher to verify that faculty completed the survey at the beginning and end of the semester. Faculty were asked to provide their age, gender, race, previous number of online courses taught at VCC, and employment status. In examining any perceptual differences comparing pre-survey and post-survey score means, the researcher used only scores from those faculty who completed the Classroom Community Scale at both points of the semester.

Faculty may teach more than one online course during the semester, and the survey directions clearly stated that faculty should address each specific online course and not online courses in general. Since faculty may perceive that students in one course have different levels of

sense of community than students within another course, the researcher believed that duplicated headcount was important in this study. The survey was configured for faculty to complete it using SurveyMonkey, and the researcher sent a separate e-mail directly to faculty members' VCC e-mail accounts with the appropriate SurveyMonkey link. The course and section number were included in each one; therefore, faculty knew for which course they were providing their perceptions. A reminder e-mail requesting that faculty complete the survey was sent during the period for which it was open in January (see Appendix N) and April (see Appendix O).

Data Analysis

Data was generated and then assessed by course, all online courses, and each subject area. Tests were conducted to determine student and faculty perceptions of students' sense of community by course, total population, age range, gender, race, discipline, previous online course experience, and enrollment/employment status. One of two statistical measures (t-test or ANOVA) was used to examine each component within the first three research questions. A dependent t-test was used to measure paired samples, an independent t-test was used to measure independent group means, and an ANOVA was used to measure more than two group means. To determine the correlation between students' sense of community and final course grades in the fourth research question, correlation coefficients were figured. The specific measurements and appropriate statistical tests for each research question are defined in the Appendices.

Measurements for the first research question may be found in Appendices P and Q; second research question, Appendices R and S; third research question, Appendices T and U; and fourth research question, Appendix V. For each statistical test, the researcher used $p < .05$ to determine significance. The data was imported into excel to complete the calculations using the data analysis function, and SPSS was also used to conduct statistical calculations.

Limitations

Limitations are uncontrollable factors which have potential to influence a study (Ellis & Levy, 2009). The potential for flaws exists in all research, and the researcher attempted to minimize the deficiencies in this study by limiting the threats to internal and external validity. To control internal validity, the researcher needs to manage the superfluous variables that can impact the results, and to manage external validity, he needs to recognize the limits for generalizing the outcomes (Parker, 1993). The following were limitations with associated strategies to help alleviate them.

Student and faculty experiences. Students and faculty completed the survey at two distinct periods during the semester. It was possible that students and faculty would have a positive or negative community experience just prior to completing the scale on either occasion, skewing their perceptions. The researcher instructed students and faculty to respond to the questions based on their perceptions for the entire semester up to the point of completing the scale. This instruction helped prevent students and faculty from basing their perceptions of an entire semester on one recent event.

Multiple requests. Students completed the survey on two separate occasions, but they may have recalled answers from the first time and given the same response without consideration of a perceptual change. They may also have resented being asked to complete it on two occasions and responded without significant thought the second time. This may have skewed the results to be more positive or negative than actually perceived. The researcher explained to students and faculty that a comparison was being determined based on two distinct points during the semester. He also emphasized to them that completing it carefully and honestly on both occasions would enhance the research being conducted.

Response rate. The researcher expected students and faculty to complete the scale on two occasions. Those not completing the scale on both occasions did not have their responses counted within the results. It was imperative that students and faculty completing the scale during weeks 2 and 3 of the semester also participated during weeks 13 and 14. If they did not participate on both occasions, the overall response rate would be low. The students and faculty received e-mails from the researcher asking them to participate on both occasions, and the instructors were asked to communicate with students requesting their full participation. All students in the online arts and sciences courses were invited to participate to maximize the return rate, thereby minimizing sampling error concerns. A lower response rate may result in sampling errors, which could lead to a Type 1 error (rejecting a correct null hypothesis) or a Type II error (not rejecting an incorrect null hypothesis). The researcher e-mailed students and faculty reminding them about completing the scale, and he imported the survey into Blackboard for the students to complete it. The faculty received an e-mail with the survey included as a link within the text of it.

Reviewing results. Students may have assumed that faculty would review results of student responses before grades were submitted. This assumption may have resulted in students choosing not to complete the survey or students exaggerating their responses to “please” the faculty member. When receiving the survey, students were given directions clearly defining the parameters in which the research would be reviewed. Students were told no faculty would see individual course results even after having submitted final grades. The researcher needed to identify participants via their ID numbers to assure completion of the two surveys; however, he was the only VCC person to view information that associated a specific student or faculty member with confidential results. Although the researcher was not the supervisor of the faculty

members used in this research, he may have been considered biased because he is an administrator at the institution. Faculty members may have assumed that the researcher would include responses on their yearly evaluations; however, he guaranteed that no specified individual course results would be used in the study or shared with other parties, including their current supervisor.

Delimitations

There need to be boundaries in any research because it is not possible for a person to manage all aspects of a broad topic such as sense of community within a distance learning environment (Ellis & Levy, 2009). This study focused on student and faculty perceptions of students' sense of community within arts and sciences online courses at one community college in Virginia. Because the researcher was only using one college and focusing on a specific grouping of online courses within that institution, no one should assume that duplicating the research will lead to similar results at other institutions. VCC is one community college among 22 others in Virginia and well over 1,000 in the United States. The counties within VCC's service region are diverse in themselves with varying populations and economic backgrounds. The researcher determined an initial understanding of the perceptual differences in students' sense of community and faculty members' perceptions of students' sense of community at one institution, and researchers may expand the generalization of findings by including more community colleges in future research.

Ethical Protection of Participants

Faculty were assured that the researcher would not highlight excellent or poor performance of any one faculty member. Rather, the goal was to develop an overall understanding of student and faculty perceptions of students' sense of community at two distinct

points during a semester and to determine students' sense of community related to final course grades. Real names and individual courses were not used in the results to assure confidentiality of all participants. Student and faculty names were kept confidential, but it was not feasible for participants to be unknown to the researcher. The ID numbers were used to verify completion of both instruments, but because each online course was taught by only one person, it was obvious that student surveys for each particular course pertained to the faculty member teaching that class. Student and faculty names were not associated with any findings or shared with any faculty, staff, or administrators.

The researcher conducted a drawing for eight (8) \$25 gas gift cards with a grand prize of a \$200 gas gift card. Students completing all questions on BOTH pre-survey and post-survey instruments were eligible. Students were entered in the drawing for each online course used in this research for which they completed both the pre and post survey. They included their name and e-mail address on their survey if they wished to be included in the gift card drawing. Names were selected randomly with the researcher putting student names in a hat and selecting them one at a time. The first eight (8) drawn received a \$25 gift card and the ninth one selected won a \$200 gift card. Drawing winners were informed via e-mail at the e-mail address provided on the survey. Students were asked to pick up their gift cards in the researcher's office or to provide an address so they could be mailed.

Conclusion

This chapter laid the foundation for examining student perceptions and faculty perceptions of students' sense of community within the same online courses. Comparing the differences between and among the two groups enabled the researcher to lay a foundation on whether or not perceptions of students' sense of community changed during the semester. In

addition, the students' sense of community was compared to final student grades to determine if there was a significant correlation between them. The research design, research questions, survey participants, instrumentation, data collection and analysis, limitations, delimitations, and ethical protection of participants were addressed to define how the research was conducted. Examining students' perceptions of their sense of community and faculty member's perceptions of students' sense of community at two distinct points during the semester provided pertinent information to the sense of community felt in VCC courses, as well as determined if a correlation between students' sense of community and final course grades existed. The purpose of this study was not to find fault with students' work ethics or faculty members' teaching of online courses. Rather, the purpose was to determine students' sense of community and faculty members' perceptions of students' sense of community within online arts and sciences courses at VCC and examine if a correlation existed between students' sense of community to final course grades.

CHAPTER 4

RESULTS

The primary goal of this study was to determine differences between and among online students and faculty related to their perceptions of students' sense of community at two points during an academic semester. In this chapter, the researcher provides a brief review of the methodology used, description of the students and faculty completing the surveys, and outline of the statistical measures used and the results.

Review of Methodology

The researcher used a revised version of Rovai's (2002b) sense of community scale to measure students' sense of community and faculty members perceptions of students' sense of community in the same courses at two distinct times of an academic semester. The researcher determined pre-survey and post score means based on responses to the 20 questions within the scale. He asked additional questions to help learn how students and faculty use technology in their respective courses, as well as to understand what methods of instruction have a stronger impact on their sense of community.

The study was conducted during the Spring 2011 academic semester at VCC. Students and faculty in online arts and sciences courses received a SurveyMonkey pre-survey survey electronically (via Blackboard for students and e-mail for faculty) at the start of week 2 of the academic semester, and the timeline for completing it was two weeks. Reminder e-mails were sent to each group after the first week. Post-survey surveys created in SurveyMonkey were sent electronically via Blackboard for students and e-mail for faculty to the same set of students and faculty at the beginning of week 13, with a week 14 deadline. Students and faculty were asked to include their student ID number or to provide their name, if they could not recall the ID number.

The researcher asked each respondent to include age range, race, gender, enrollment/employment status, and number of online courses completed.

Survey Issues

Unanticipated issues with the returned surveys materialized. Some students made typing errors within their ID numbers, and other students included their student ID number for either the pre-survey or post-survey and their name for the opposite one. As examples, John Doe was ID number 1234567 when identifying himself in the pre-survey and ID number 1234657 when identifying himself in the post-survey, or he was 1234567 in the pre-survey and then John Doe for the post-survey. To garner a legitimate comparison for the pre-survey and post-survey scores, the researcher needed to assure that the pre-surveys and post-surveys were paired accurately. Using the find function in excel, the researcher was able to pair all ID numbers and names that were listed the same on both the pre-survey and post-survey surveys. He then used the VCCS SIS system to match ID numbers that were used on the pre-survey or post-survey to a name used on either the pre-survey or post-survey. For ID numbers where the numbers were close but not exact, the researcher again used the VCCS SIS system to determine which ID was accurate and to confirm the individual's identity.

Quantitative Statistics

Demographics. In a review of the course rosters at the end of the semester, 1,216 grades were recorded within the 56 online courses used in this study. The pre-survey surveys generated a response from 738 students (60.7%) and 53 faculty (94.6%). The post-survey surveys garnered a response from 390 students (32.1%) and 49 faculty (87.5%). Two hundred sixty-nine (22.1%) students and 48 faculty members (85.7%) completed both pre-survey and post-survey surveys. Tables 2-7 indicate by gender, enrollment/employment status, age range, academic discipline,

race, and number of online courses completed/taught the number and percentage of students and faculty members who completed the sense of community survey pre-survey and post-survey.

Table 2

Number and Percent of Pre-survey/Post-survey Sense of Community Surveys by Gender

Gender	# of students	%	# of faculty	%
Female	229	85.1%	35	72.9%
Male	40	14.9%	13	27.1%

Table 3

Number and Percent of Pre-survey/Post-survey Sense of Community Surveys by Enrollment/Employment Status

Status	# of students	%	# of faculty	%
Part-time	123	45.7%	27	56.3%
Full-time	146	54.3%	21	43.7%

Table 4

Number and Percent of Pre-survey/Post-survey Sense of Community Surveys by Age Range

Age Range	# of students	%	# of faculty	%
18-23	119	44.2%	0	0.0%
24-30	62	23%	7	14.6%
31-40	62	23%	14	29.2%
41-50	22	8.2%	11	22.9%
51-60	14	5.2%	11	22.9%
61+	0	0%	5	10.4%

Table 5

Number and Percent of Pre-survey/Post-survey Sense of Community Surveys by Academic Discipline

Discipline	# of students	%	# of faculty	%
Biology	38	14.1%	7	14.6%
Communication	19	7.1%	5	10.4%
English Composition	46	17.1%	10	20.8%
English Literature	18	6.7%	4	8.3%
Geography	20	7.4%	0	0%
History	36	13.4%	7	14.6%
Humanities	9	3.3%	2	4.2%
Math	35	13.0%	6	12.5%
Philosophy	9	3.3%	2	4.2%
Political Science	11	4.1%	0	0%
Psychology	12	4.5%	2	4.2%
Sociology	16	5.9%	3	6.3%

Table 6

Number and Percent of Pre-survey/Post-survey Sense of Community Surveys by Race

Race	# of students	%	# of faculty	%
Black/African American	25	9.3%	4	8.3%
Hispanic	13	4.8%	2	4.2%
Other	15	5.6%	2	4.2%
White	216	80.3%	40	83.3%

Table 7

Number and Percent of Pre-survey/Post-survey Sense of Community Surveys by Number of Online Courses Completed/Taught

Completed/Taught	# of students	%	# of faculty	%
0	58	21.6%	1	2.1%
1-2	62	23.0%	4	8.3%
3-4	58	21.6%	3	6.3%
5-6	34	12.6%	4	8.3%
7	57	21%	36	74.0%

Statistical Power. Cohen (1988) explained that statistical power is the probability of the null hypothesis being rejected. When a researcher determines that low power exists within a statistical analysis, results, whether found to be significant or not, may be deemed inconclusive. Sample size and effect size are the two most important factors in determining the power of a study. Sample size is the number of people completing the study, and effect size is determined by dividing the difference between means by the population standard deviation. The higher the sample size and effect size, the higher the power will be (Aron, Aron, & Coups, 2006). In this study, smaller sample sizes and lower effect sizes existed within the statistical tests which divided variables into smaller categories, such as age range and race. It is not prudent, therefore, to assume that results would not be different with evidence of a larger population and/or effect size. However, the results provide a baseline detailing student and faculty perceptions of students' sense of community at two distinct points in the academic semester at VCC. Measurements of the total population resulted in the largest power scores. Confidence intervals (CI) provide a range of scores in which the researcher can be confident include the true population score (Aron et al.). The researcher includes CI at the 95% level in the statistical charts.

Research Question 1: Do student perceptions of their sense of community within their online courses change during the semester? Using pre-survey data from weeks 2 and 3 of the semester and post-survey data from weeks 13 and 14 of the same semester, the researcher conducted two-tailed dependent t-tests to calculate mean student differences by individual course, total population, gender, enrollment status, age range, academic discipline, race, and total number of online courses completed. Three courses (two in biology and one in communication studies) were not used in the student analysis because no student completed both

a pre-survey and post-survey survey. Individual courses are listed by number and not section code to provide confidentiality to the faculty and students. The course number was removed from classes in which only one section was offered. Students' perception of their sense of community declined significantly from beginning of the semester to the end of the term within many of the conducted tests reported in this section.

Individual course. Reviewing student differences during the semester by individual course, only one class (a math course) had a significant difference. For that course, the pre-survey score mean was 64.8 (5), 95% CI [60.42, 69.18], and the post-survey score mean was a 50 (7.95), 95% CI [43.03, 56.97]. Students' sense of community, in the one math course, significantly declined from pre-survey to post-survey ($t(4) = 2.89$, $p = .04$) (see Table 8).

Table 8

Pre-survey and Post-survey Students' Sense of Community Scores and T-test Results by Course

Course	Student Pre-survey			Student Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
BIO 101 (1)	60.0	5.87	[54.25, 65.75]	53.75	3.49	[50.33, 57.17]	2.44	3	.09
BIO 101 (2)	58.0	12.03	[44.39, 71.61]	51.30	1.70	[49.38, 53.22]	0.86	2	.48
BIO 101 (3)	62.0	4.0	[56.46, 67.54]	47.50	1.50	[45.42, 49.58]	2.63	1	.23
BIO 102 (4)	60.63	7.40	[55.5, 65.76]	58.38	6.10	[54.15, 62.61]	1.47	7	.19
BIO 102 (5)	53.0	0	[53.0]	52.0	3.0	[47.84, 56.16]	0.33	1	.795
BIO 102 (6)	55.80	8.08	[47.88, 63.72]	52.20	13.15	[39.31, 65.09]	0.79	4	.47
BIO (7)	56.20	3.52	[53.90, 58.50]	56.0	3.97	[53.41, 58.59]	0.59	8	.86
BIO (9)	53.0	4.06	[49.02, 56.98]	56.50	5.32	[51.29, 61.71]	-0.74	3	.51
CST (11)	50.33	9.39	[39.70, 60.96]	50.67	7.54	[42.14, 59.20]	-0.07	2	.95
CST 110 (12)	54.75	3.11	[51.70, 57.80]	53.25	5.67	[47.69, 58.81]	0.63	3	.58
CST 110 (13)	63.25	6.83	[56.56, 69.94]	66.0	7.65	[58.50, 73.50]	-2.0	3	.14
CST (15)	59.50	10.26	[52.39, 66.61]	51.0	15.64	[40.16, 61.84]	2.1	7	.07
ENG 111 (16)	60.50	7.50	[50.11, 70.89]	55.0	0.0	[55.0]	0.73	1	.60
ENG 111 (17)	56.14	3.80	[53.32, 58.96]	55.43	7.98	[49.52, 61.34]	0.19	6	.85
ENG 111 (18)	58.0	2.45	[55.85, 60.15]	50.60	11.77	[40.28, 60.92]	1.38	4	.23
ENG 112 (19)	58.67	4.78	[53.26, 64.08]	58.67	8.73	[48.79, 65.55]	1.62	2	.25
ENG 112 (20)	53.50	4.50	[47.26, 59.74]	64.50	13.50	[45.79, 83.21]	-1.22	1	.44
ENG 112 (21)	60.43	5.97	[56.01, 64.85]	62.29	6.16	[57.73, 66.85]	-0.95	6	.38
ENG 112 (22)	67.0	9.01	[58.17, 75.83]	60.50	7.65	[53.0, 68.0]	1.63	3	.20
ENG 112 (23)	57.80	2.56	[55.56, 60.04]	64.0	9.34	[55.81, 72.19]	-1.17	4	.31

ENG 112 (24)	65.83	7.58	[59.76, 71.90]	67.50	7.04	[61.87, 73.13]	-0.93	5	.40
ENG 112 (25)	54.60	4.50	[50.66, 58.54]	57.40	1.85	[55.78, 59.02]	-1.33	4	.25
ENG 236 (26)	57.50	2.29	[55.26, 59.74]	58.25	8.93	[49.50, 67.0]	-0.15	3	.88
ENG 236 (27)	60.0	7.26	[51.78, 68.22]	62.30	3.30	[58.57, 66.03]	-0.73	2	.54
ENG (28)	65.80	8.38	[58.45, 73.15]	64.20	8.49	[56.76, 71.64]	0.94	4	.40
ENG (29)	56.67	6.39	[53.05, 60.29]	56.17	7.81	[51.75, 60.59]	0.37	11	.75
GEO (30)	55.50	4.74	[52.22, 58.78]	56.0	4.18	[53.10, 58.90]	-0.44	7	.67
GEO (31)	55.25	4.71	[52.59, 57.91]	55.75	10.5	[49.86, 61.74]	-0.22	11	.82
HIS (32)	57.20	1.93	[55.51, 58.89]	58.80	3.49	[55.74, 61.86]	-0.73	4	.50
HIS (33)	64.33	5.76	[59.72, 68.94]	57.67	9.29	[50.24, 65.10]	1.51	5	.19
HIS (34)	55.25	10.57	[44.89, 65.61]	49.75	8.35	[41.57, 57.93]	1.91	3	.15
HIS 121 (35)	55.83	5.60	[51.35, 60.31]	53.17	7.80	[46.93, 59.41]	1.37	5	.22
HIS 121 (36)	49.67	4.71	[44.34, 55.0]	49.67	7.32	[41.39, 57.95]	0.0	2	1.0
HIS 122 (37)	63.50	6.75	[58.10, 68.90]	64.17	6.28	[59.14, 69.20]	-0.41	5	.70
HIS 122 (38)	55.83	4.02	[52.61, 59.05]	57.67	5.47	[53.29, 62.05]	-0.63	5	.50
HUM (39)	62.50	5.80	[57.86, 67.14]	63.67	8.33	[57.0, 70.34]	-0.36	5	.76
HUM (40)	53.30	8.73	[43.42, 63.18]	58.33	1.25	[56.84, 59.66]	-0.71	2	.55
MTH (41)	53.45	6.87	[49.39, 57.51]	56.18	8.85	[50.95, 61.41]	-2.11	10	.06
MTH (42)*	64.80	5.0	[60.42, 69.18]	50.0	7.95	[43.03, 56.97]	2.89	4	.04
MTH (43)	59.40	8.45	[51.99, 66.81]	55.20	9.70	[46.70, 63.70]	0.94	4	.40
MTH (44)	52.50	1.12	[51.40, 53.60]	51.75	4.32	[47.52, 55.98]	0.33	3	.76
MTH (45)	60.30	5.06	[56.25, 64.35]	55.67	3.64	[52.76, 58.58]	1.67	5	.16
MTH (46)	51.30	5.91	[44.61, 57.99]	56.0	1.63	[54.16, 57.84]	-1.47	2	.28

MTH (47)**	64.0		57.0							
PHI (48)	61.40	10.6	[52.11, 70.69]	54.40	17.08	[39.43, 69.37]	1.18	4	.30	
PHI (49)	53.75	2.86	[50.95, 56.55]	50.50	5.50	[45.11, 55.89]	2.1	3	.13	
PLS (50)	53.25	3.56	[49.76, 56.74]	51.50	4.27	[47.32, 55.68]	0.70	3	.53	
PLS (51)	61.86	5.57	[57.73, 65.99]	56.43	8.86	[49.87, 62.99]	1.46	6	.19	
PSY (52)	57.67	8.18	[48.41, 66.93]	57.33	4.50	[52.24, 62.42]	0.04	2	.97	
PSY (53)	59.44	8.83	[53.67, 65.21]	54.67	5.25	[51.24, 58.10]	1.60	8	.15	
SOC 200 (54)	56.20	4.45	[52.30, 60.10]	53.20	6.05	[47.90, 58.50]	0.87	4	.44	
SOC 200 (55)	60.0	7.10	[53.78, 66.22]	61.60	9.26	[53.48, 69.72]	-0.39	4	.71	
SOC (56)	60.67	5.96	[55.90, 65.44]	57.67	3.59	[54.80, 60.54]	1.99	5	.10	

*Significant $p < .05$

**Only one student responded on both surveys

Note Three courses had no pre-survey and post-survey surveys

Note CI = confidence interval

Total population. To compare the total population pre-survey score mean to the post-survey score mean, a two-tailed dependent t-test was calculated. The pre-survey score mean was 58.18 (7.42), 95% CI [57.29, 59.07], and the post-survey score mean was 56.45 (9.1), 95% CI [55.36, 57.54]. Students' sense of community significantly declined from the pre-survey to the post-survey ($t(268) = 3.43$, $p < .001$).

Gender. Two-tailed dependent t-tests were calculated to compare the pre-survey and post-survey score means for females and then again for males. The pre-survey score mean for females was 58.06 (7.34), 95% CI [57.11, 59.01], and the post-survey score mean for females was 56.5 (9.08), 95% CI [55.32, 57.68]. A significant decline in students' sense of community from pre-survey to post-survey score means was determined for females ($t(228) = 2.81$, $p = .005$). For males, the pre-survey score mean was 58.85 (7.88), 95% CI [56.41, 61.29], and the post-survey score mean was 56.08 (9.27), 95% CI [53.21, 58.95]. As with females, males had a

significant decline in sense of community between pre-survey and post-survey score means ($t(39) = 2.19, p = .03$). Using a two-tailed independent samples t-test, no significant difference between females and males' sense of community scores was determined when comparing their respective pre-survey score means ($t(267) = -.63, p = .54$) or their respective post-survey score means ($t(267) = .28, p = .78$).

Enrollment status. Students were differentiated by part-time status, defined as 11 or fewer credits, and full-time status, defined as 12 or more credits. Two-tailed dependent t-tests were calculated to compare the sense of community pre-survey and post-survey means. The pre-survey score mean for part-time students was 58.09 (6.58), 95% CI [56.93, 59.25], and the post-survey score mean was 56.11 (7.90) 95% CI [54.71, 57.51]. A significant decline in sense of community from pre-survey to post-survey score means was determined for part-time students ($t(122) = 2.16, p = .03$). For full-time students, the pre-survey score mean was 58.25 (8.09), 95% CI [56.94, 59.56], and the post-survey score mean was 56.73 (10), 95% CI [55.11, 58.35]. No significant difference from pre-survey to post-survey score means on the sense of community scale was determined for full-time students ($t(145) = 1.48, p = .14$). Using a two-tailed independent samples t-test to compare sense of community scores, the researcher found no significant difference between part-time and full-time student mean scores during the pre-survey ($t(267) = .18, p = .86$) or post-survey ($t(267) = .58, p = .58$).

Age range. The next analysis involved comparing sense of community pre-survey and post-survey score means based on age range. Students were categorized into five age groups (18-23, 24-30, 31-40, 41-50, and 51-60), and two-tailed dependent t-tests were calculated to determine differences between pre-survey and post-survey score means within each age group. Only one age group (24-30) had a significant difference related to sense of community. For the

24-30 age group, the pre-survey score mean was 60.02 (6.96), 95% CI [58.32, 61.78], and the post-survey score mean was 56.48 (9.8), 95% CI [54.04, 58.92]. A significant decline in students' sense of community from pre-survey to post-survey score means was determined ($t(61) = 3.17, p = .002$) (see Table 9).

Table 9

Pre-survey and Post Test Students' Sense of Community Scores and T-test Results by Age Range

Age	Student Pre-survey			Student Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
18-23	57.84	7.42	[56.51, 59.17]	56.49	8.48	[54.97, 58.01]	1.91	118	.06
24-30*	60.05	6.96	[58.32, 61.78]	56.48	9.80	[54.04, 58.92]	3.17	61	.002
31-40	56.34	7.39	[54.80, 58.48]	55.48	9.14	[53.20, 57.76]	0.84	61	.40
41-50	60.68	8.10	[57.30, 64.06]	58.73	10.58	[54.31, 63.15]	0.87	21	.40
51-60	54.0	4.95	[49.15, 58.85]	57.0	7.10	[50.04, 63.96]	-1.22	3	.30

*Significant $p < .05$

One-way ANOVA tests were calculated to examine sense of community differences across age groups after the pre-survey and again following the post-survey. After the pre-survey, a significant difference was found in students' sense of community across age groups ($F(4, 264) = 2.78, p = .028$). Tukey's HSD was used to determine the age group differences. No significant result was found. Comparing the post-survey score means across age groups, the researcher found no significant differences in students' sense of community across age groups ($F(4, 264) = .52, p = .72$).

Academic discipline. Academic disciplines were divided by the researcher to determine differences of students' sense of community scores from pre-survey to post-survey. Two-tailed dependent t-tests were calculated. Only one academic discipline, biology, showed a significant difference in students' sense of community from pre-survey to post-survey. The biology students' pre-survey score mean was 57.42 (6.99), 95% CI [55.24, 59.68], and the post-survey

score mean was 54.79 (6.96), 95% CI [51.62, 57.96]. A significant decline in sense of community from pre-survey score means to post-survey score means was determined for the biology discipline ($t(37) = 2.18, p = .04$) (see Table 10).

Table 10

Pre-survey and Post Test Students' Sense of Community Sense of Community Scores and T-test Results by Academic Discipline

Discipline	Student Pre-survey			Student Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Biology*	57.42	6.99	[55.24, 59.68]	54.79	9.96	[51.62, 57.96]	2.18	37	.04
Communication	57.84	9.38	[53.62, 62.06]	54.58	12.91	[48.77, 60.39]	1.53	18	.14
English Composition	59.46	6.74	[57.51, 61.41]	58.85	10.20	[55.90, 61.80]	0.42	45	.68
English Literature	59.94	7.58	[56.44, 63.44]	59.89	8.45	[55.99, 63.72]	0.04	17	.97
Geography	55.35	4.73	[53.28, 57.42]	55.85	8.55	[52.10, 59.60]	-0.37	19	.72
History	58.14	7.45	[55.71, 60.57]	56.61	8.47	[53.74, 59.28]	1.31	35	.19
Humanities	59.44	8.15	[54.12, 64.76]	61.89	7.26	[57.15, 66.63]	-0.82	8	.46
Math	57.10	7.61	[54.48, 59.62]	54.57	7.55	[52.07, 57.07]	1.67	34	.10
Philosophy	58.0	8.96	[52.15, 63.85]	52.67	13.39	[43.92, 61.42]	1.64	8	.14
Political Science	58.73	6.44	[54.92, 62.54]	54.64	7.89	[49.98, 59.30]	1.64	10	.13
Psychology	59.0	8.71	[54.07, 63.93]	55.33	5.20	[52.39, 58.27]	1.24	11	.24
Sociology	59.06	6.25	[56.0, 62.12]	57.50	7.36	[53.89, 61.11]	0.91	15	.38

*Significant $p < .05$

One-way ANOVA tests compared the sense of community pre-survey score means across academic disciplines, and then again to compare the post-survey score means. No significant differences were discovered across pre-survey score means ($F(11, 257) = .64, p = .80$) or the

post-survey score means for students' sense of community across academic disciplines ($F(11, 257) = 1.38, p = .18$).

Race. Using a two-tailed dependent t-test, an examination of students' sense of community scores by race (Black/African American, Hispanic, Other, and White), found that two races (Other and White) experienced significant decline in their sense of community over the semester. For "Other" students, the pre-survey score mean was 60.53 (8.41), 95% CI [56.27, 64.79], and the post-survey score mean was 54.67 (9.95), 95% CI [49.63, 59.71]. A significant decline from sense of community pre-survey score mean to post-survey score mean was determined ($t(14) = 3.35, p < .001$). For the white students, the pre-survey score mean was 58.19 (7.3), 95% CI [57.22, 59.16], and the post-survey score mean was 56.63 (9.12), 95% CI [55.41, 57.85]. A significant decline from sense of community pre-survey to post-survey score means was found ($t(215) = 2.85, p = .005$) (see Table 11).

Table 11

Pre-survey and Post Test Students' Sense of Community Scores and T-Test Results by Race

Race	Student Pre-surveys			Student Post-surveys			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Black/African American	57.68	8.34	[54.41, 60.95]	57.76	9.03	[54.22, 61.30]	0.45	24	0.66
Hispanic	55.85	7.72	[51.65, 60.05]	55.0	6.76	[51.33, 58.67]	0.54	12	0.60
Other*	59.33	8.41	[55.07, 63.59]	53.0	9.95	[48.12, 57.88]	3.34	14	$p < .001$
White **	58.30	7.30	[57.33, 59.27]	56.63	9.12	[55.41, 57.85]	2.85	215	.005

*Significant $p < .001$

** Significant $p < .05$

The researcher explored differences in pre-survey score means and post-survey score means across the races using one-way ANOVA tests. No significant differences for students'

sense of community across races were determined between the pre-survey score means ($F(3, 265) = .6, p = .62$) or the post-survey score means ($F(3, 265) = 1.02, p = .38$).

Online courses completed. Using two-tailed dependent t-tests, an evaluation of students' sense of community pre-survey and post-survey score means based on the number of online courses students had completed (0, 1-2, 3-4, 5-6, 7) found that two (0 and 7) had significant differences. For students having previously completed no online courses, the pre-survey score mean was 57.38 (7.22), 95% CI [55.42, 59.24] compared to the post-survey score mean of 54.74 (9.18), 95% CI [52.38, 57.10]. Students with no online course experience had a significant decline in their sense of community scores from pre-survey to post-survey ($t(57) = 2.3, p = .025$). For the students having completed seven or more online courses, the pre-survey score mean was 57.58 (6.82), 95% CI [55.81, 59.35], and the post-survey score mean was 55.14 (8.03), 95% CI [53.06, 57.22]. Students with the most online experience also sustained a significant decline in their sense of community score means from pre-survey to post-survey ($t(56) = 2.38, p = .02$) (see Table 12).

Table 12

Pre-survey and Post-survey Students' Sense of Community Scores and T-test Results by Number of Online Courses Completed

Online Course Completion	Student Pre-survey			Student Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
0*	57.38	7.22	[55.52, 59.24]	54.74	9.18	[52.38, 57.10]	2.3	57	.025
1-2	58.60	8.12	[56.58, 60.62]	57.61	8.32	[55.54, 59.68]	0.84	61	.40
3-4	58.10	6.86	[56.33, 59.87]	57.28	7.52	[55.34, 59.22]	0.58	57	.50
5-6	60.03	7.97	[57.35, 62.71]	58.03	12.83	[53.72, 62.34]	1.37	33	.18
7*	57.51	6.82	[55.74, 59.28]	55.14	8.03	[53.06, 57.22]	2.38	56	.02

*Significant $p < .05$

Using a one-way ANOVA test, the researcher explored students' sense of community pre-survey score means across the five levels of online course experience, and a second one-way ANOVA was used to compare the post-survey score means. No significant differences in students' sense of community scores were determined for the pre-survey score means ($F(4, 264) = .86, p = .49$) or post-survey score means ($F(4, 264) = 1.44, p = .22$).

Sense of community. Due to the significant decline from pre-survey mean scores to post-survey mean scores for overall student sense of community, the researcher analyzed each question within the 20 question survey using two-sample dependent t-tests. Table 13 depicts the significant decline from pre-survey score means to post-survey score means in 12 of the 20 questions. On the post-survey scores, the top five highest rated responses based on students' perceptions of their sense of community were "course promotes desire to learn," "educational needs are being met," "ample opportunities to learn," "encouraged to ask questions," and "get help when have questions." "Timely feedback" was sixth.

Table 13

Pre-survey and Post-survey Students' Sense of Community Scores and T-test Results by Individual Question

Sense of Community Questions	Student Pre-survey			Student Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Feel students in course care about each other*	2.80	.59	[2.73, 2.87]	2.72	.68	[2.64, 2.80]	2.2	268	.03
Feel encouraged to questions*	3.30	.57	[3.23, 3.37]	3.11	.65	[3.03, 3.19]	4.15	267	< .001
Feel connected to others in this course	2.62	.70	[2.54, 2.70]	2.55	.77	[2.46, 2.64]	1.58	266	.12
Feel hard to get help when have question*	3.14	.65	[3.06, 3.22]	3.08	.72	[2.99, 3.17]	1.21	267	.23
Do not feel a spirit of community***	2.85	.67	[2.77, 2.93]	2.68	.77	[2.59, 2.77]	3.38	267	< .001
Feel that I receive timely feedback*	3.15	.53	[3.09, 3.21]	3.03	.77	[2.94, 3.12]	2.57	265	.01
Feel course is like a family*	2.28	.68	[2.20, 2.36]	2.18	.77	[2.09, 2.27]	2.1	266	.04
Feel uneasy exposing gaps in understanding**	2.94	.68	[2.86, 3.02]	3.0	.64	[2.92, 3.08]	-1.16	266	.25
Feel isolated in the course***	3.04	.63	[2.96, 3.12]	2.95	.73	[2.86, 3.04]	2	268	.05
Feel reluctant to speak openly**	3.09	.63	[3.01, 3.17]	3.01	.69	[2.93, 3.09]	1.65	267	.10
Trust others in this course	2.75	.54	[2.68, 2.82]	2.71	.67	[2.63, 2.79]	1.10	264	.27
Feel this course results in only modest learning***	2.95	.70	[2.87, 3.03]	2.83	.79	[2.74, 2.92]	2.18	267	.03
Feel that I can rely on others in this course*	2.73	.58	[2.66, 2.80]	2.53	.74	[2.44, 2.62]	4.40	266	< .001
Feel that other students do not help me learn***	2.92	.64	[2.84, 3.0]	2.80	.72	[2.71, 2.89]	2.57	265	.01
Feel members of course depend on me	2.24	.67	[2.16, 2.32]	2.21	.74	[2.12, 2.3]	.57	267	.57
Feel that am given ample opportunities to learn*	3.24	.51	[3.18, 3.30]	3.15	.64	[3.07, 3.23]	1.97	266	.05
Feel uncertain about others**	2.81	.61	[2.74, 2.88]	2.91	.57	[2.84, 2.98]	-1.46	264	.15
Feel educational needs are not being met**	3.28	.59	[3.21, 3.35]	3.20	.69	[3.12, 3.28]	1.64	268	.10
Feel confident others will support me*	2.87	.60	[2.80, 2.94]	2.75	.66	[2.67, 2.83]	3.13	265	< .001

Feel course does not promote desire to learn***	3.33	.58	[3.26, 3.40]	3.22	.68	[3.14, 3.30]	2.49	265	.01
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*Significant at $p < .05$

** Reverse scored

*** Significant at $p < .05$ and reverse scored

Connectedness and learning subscales. Rovai (2002b) developed two subsets to the sense of community scale. Within the 20 question survey, each odd question pertained to connectedness and each even question to learning. The researcher determined the mean scores for the 10 connectedness questions and 10 learning questions. He then conducted two-tailed dependent t-tests to calculate differences between the pre-survey and post-survey score means for connectedness and learning. For connectedness the student pre-survey score mean was 26.94 (4.78), 95% CI [26.37, 27.51], and the student post-survey score mean was 26.12 (5.49), 95% CI [25.46, 26.78]. A significant decline in students' perceptions of connectedness from student pre-survey to post-survey score means was determined ($t(268) = 3.04$, $p = .003$). For learning, the student pre-survey score mean was 31.24 (4.08), 95% CI [30.75, 31.73], and the student post-survey score mean was 30.33 (4.81), 95% CI [29.76, 30.90]. Again, a significant decline in students' perception of learning from student pre-survey to post-survey score means was determined ($t(268) = 3.08$, $p = .002$).

Summary of Significant Results

Several statistically significant findings existed within the various measurements of students' perception of their sense of community from early in the semester to the end of term.

They included:

- One math course
- Total population
- Males and females
- Part-time students

- Students between ages of 24-30
- Biology discipline
- Other and white students
- Students with no online experience
- Students with seven or more courses of online experience
- Twelve of the individual sense of community questions including:
 - I feel that students in this course care about each other.
 - I feel that I am encouraged to ask questions.
 - I do not feel a spirit of community. (reverse scored)
 - I feel that I receive timely feedback.
 - I feel that this course is like a family.
 - I feel isolated in this course. (reverse scored)
 - I feel that this course results in only modest learning. (reverse scored)
 - I feel that I can rely on others in this course.
 - I feel that other students do not help me learn. (reverse scored)
 - I feel that I am given ample opportunities to learn.
 - I feel confident that others will support me.
 - I feel that this course does not promote a desire to learn. (reverse scored)
- Connectedness and learning subscales

Research Question 2: Do faculty perceptions of students' sense of community within their online courses change during the semester? Using pre-survey data from weeks 2 and 3 of the semester and post-survey data from weeks 13 and 14 of the same semester, the researcher used two-tailed dependent t-tests to explore mean scores of faculty perceptions of

students' sense of community by individual course, total population, gender, employment status, age range, academic discipline, race, and total number of online courses taught. Eight courses (three in biology, two in geography, two in political science, and one in math) were not used because the respective faculty did not complete both a pre-survey and post-survey survey. Individual courses are listed by number and not section code to provide confidentiality to the faculty and students. The course number was removed from classes in which there was only one section offered.

Individual course. Only one faculty member was assigned to each course; therefore, for each individual online class, only one pre-survey score and one post-survey score was present. Out of the 48 faculty completing the scale on both occasions, 22 had a decline in perceptions of students' sense of community from pre-survey to post-survey, 22 had an increase, and four (4) remained the same. Table 14 shows faculty perceptions of students' sense of community pre-survey and post-survey scores by course, and the mean score differences for each one. Faculty for three courses (one math and two political science) did not complete the pre-survey, and instructors for seven courses (three biology, two geography, and two political science) did not complete a post-survey survey.

Table 14

Pre-survey and Post-survey Faculty Perception of Students' Sense of Community Scores and Mean Differences by Individual Course

Course	Pre-survey	Post-survey	Mean Difference
BIO 101 (1)	55	52	-3
BIO 101 (2)	52	54	+2
BIO 101 (3)	49	47	-2
BIO 102 (4)	52	51	-2
BIO (7)	56	57	+1
BIO (8)	57	58	+1
BIO (9)	50	56	+6
CST (11)	70	66	-4
CST 110 (12)	57	52	-5
CST 110 (13)	55	51	-4
CST 110 (14)	58	63	+5
CST (15)	63	71	+8
ENG 111 (16)	56	58	+2
ENG 111 (17)	60	58	-2
ENG 111 (18)	57	62	+5
ENG 112 (19)	59	56	-3
ENG 112 (20)	50	59	+9
ENG 112 (21)	64	63	-1
ENG 112 (22)	64	74	+10
ENG 112 (23)	60	63	+3
ENG 112 (24)	68	55	-13
ENG 112 (25)	71	59	-12
ENG 236 (26)	59	59	0
ENG 236 (27)	54	60	+6
ENG (28)	69	72	+3
ENG (29)	71	69	-2
HIS (32)	55	55	0
HIS (33)	56	56	0
HIS (34)	55	57	+2
HIS 121 (35)	51	52	+1
HIS 121 (36)	50	53	+3
HIS 122 (37)	51	55	+4
HIS 122 (38)	67	66	-1
HUM (39)	61	55	-6
HUM (40)	51	55	+4

MTH (41)	56	58	+2
MTH (42)	56	58	+2
MTH (43)	56	54	-2
MTH (45)	56	56	0
MTH (46)	58	56	-2
MTH (47)	58	52	-6
PHI (48)	45	44	-1
PHI (49)	49	45	-4
PSY (52)	53	50	-3
PSY (53)	54	45	-9
SOC 200 (54)	40	45	+5
SOC 200 (55)	41	51	+10
SOC (56)	61	60	-1

NOTE Eight courses were removed because a pre-survey and/or post-survey was not completed

Total population. A two-tailed dependent t-test was used to compare faculty perceptions of students' sense of community pre-survey score mean to the post-survey score mean. The pre-survey score mean was 56.58 (6.91), 95% CI [54.63, 58.53], and the post-survey score mean was 56.73 (6.77), [54.81, 58.65]. Although a slight increase in faculty perceptions of students' sense of community existed between pre-survey and post-survey score means, the difference was not significant ($t(47) = -.19, p = .85$).

Gender. A two-tailed dependent t-test was used to compare faculty perceptions of students' sense of community pre-survey and post-survey score means based on gender. The pre-survey score mean for females was 57.29 (7.34), 95% CI [54.86, 59.72], and the female post-survey score mean was 57.31 (7.27), 95% CI [54.90, 59.72]. No significant difference in sense of community from pre-survey to post-survey score means was determined for females ($t(34) = -.03, p = .97$). For males, the pre-survey score mean was 54.69 (5.12), 95% CI [51.91, 57.47], and the post-survey score mean was 55.15 (4.85), 95% CI [52.51, 57.79]. As with females, no significant difference in faculty perceptions of students' sense of community was found for males between pre-survey and post-survey score means ($t(12) = -.35, p = .73$). Using a two-tailed

independent samples t-test, no significant difference was determined comparing female and male faculty perceptions of students' sense of community pre-survey score means ($t(46) = 1.15$, $p = .26$) or their respective post-survey score means ($t(46) = .97$, $p = .34$).

Employment status. Two-tailed dependent t-tests were calculated to compare the pre-survey and post-survey score means based on part-time faculty status, defined as faculty receiving no benefits, and full-time faculty status, defined as faculty receiving benefits. The pre-survey score mean for part-time faculty was 58.52 (7.43), 95% CI [55.72, 61.32], and the post-survey score mean was 57.78 (8.4), 95% CI [54.61, 60.95]. No significant difference from sense of community pre-survey to post-survey score means was determined for part-time faculty ($t(26) = .65$, $p = .56$). The pre-survey score mean for full-time faculty was 54.1 (5.22), 95% CI [51.87, 56.33], and the post-survey score mean was 55.38 (3.27), 95% CI [53.98, 56.78]. No significant difference from pre-survey to post-survey score means was determined for full-time faculty members' perceptions of students' sense of community ($t(20) = -1.5$, $p = .13$). Using a two-tailed independent samples t-test, the researcher found a significant difference in sense of community when comparing part-time to full-time faculty pre-survey score means ($t(46) = -2.27$, $p = .028$); however, no significant difference occurred when comparing part-time to full-time faculty perceptions of students' sense of community post-survey score means ($t(46) = -1.2$, $p = .23$).

Age range. Two-tailed dependent t-tests were used to determine mean differences between the pre-survey and post-survey score means of faculty perceptions of students' sense of community based on age range. Faculty were categorized into five age groups (24-30, 31-40, 41-50, 51-60, and 61+). No significant differences existed between the pre-survey and post-survey score means of faculty perceptions of students' sense of community for any of the age groups (see Table 15).

Table 15

Pre-survey and Post-survey Faculty Perceptions of Students' Sense of Community Scores and T-test Results by Age Range

Age	Faculty Pre-survey			Faculty Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
24-30	60.43	10.90	[51.96, 68.10]	57.14	9.93	[49.78, 64.50]	1.22	6	.27
31-40	56.86	4.69	[54.40, 59.32]	56.86	5.82	[53.81, 59.91]	0.0	13	1.0
41-50	57.45	4.16	[54.99, 59.91]	57.09	5.04	[54.11, 60.07]	-0.29	10	.88
51-60	55.55	7.75	[50.92, 60.08]	58.36	7.01	[54.22, 62.50]	-1.96	10	.46
61+	50.80	1.30	[49.66, 51.94]	51.4	2.73	[49.01, 53.79]	-0.44	4	.68

One-way ANOVA tests were used to examine faculty perceptions of students' sense of community pre-survey and post-survey score means across age groups. No significant differences were found across age groups within the pre-survey score means ($F(4,43) = 1.57$, $p = .2$) or the post-survey score means ($F(4,43) = .88$, $p = .49$).

Academic discipline. To compare faculty perceptions of students' sense of community across academic disciplines, two-tailed dependent t-tests were calculated. No significant differences were found between pre-survey score means or post-survey score means (see Table 16).

Table 16

Pre-survey and Post-survey Faculty Perceptions of Students' Sense of Community Scores and T-test Results by Academic Discipline

Discipline	Faculty Pre-survey			Faculty Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Biology	53.0	2.83	[50.9, 55.1]	53.57	3.58	[50.92, 56.22]	-0.51	6	.63
Communication	60.60	5.39	[55.88, 65.32]	60.60	7.86	[53.71, 67.49]	0.0	4	1.0
English Composition	60.90	5.79	[57.31, 64.49]	60.70	5.14	[57.51, 63.89]	0.08	9	.94
English Literature	63.25	7.01	[56.38, 70.12]	65.0	5.61	[59.5, 70.5]	-1.0	3	.39
History	55.0	5.37	[51.02, 58.98]	56.29	4.23	[53.16, 59.42]	-1.01	6	.10
Humanities	56.0	5.0	[49.07, 62.93]	55.0	0.0	[55.0]	0.20	1	.87
Math	56.67	0.94	[55.92, 57.42]	55.67	2.13	[53.97, 57.37]	0.81	5	.46
Philosophy	47.0	2.0	[44.23, 49.77]	44.50	0.50	[43.81, 45.19]	1.67	1	.34
Psychology	53.50	0.5	[52.81, 54.19]	47.50	2.5	[44.04, 50.96]	2.0	1	.30
Sociology	47.30	9.67	[36.36, 58.24]	52.0	6.16	[45.03, 58.97]	-1.47	2	.28

NOTE Two disciplines (geography and political science) did not have a pre-survey and post-survey score

One-way ANOVA tests were calculated to compare the pre-survey score means and then the post-survey score means of faculty perceptions of students' sense of community across academic disciplines. A significant difference was found across the pre-survey score means ($F(9, 38) = 3.34, p = .004$) and the post-survey score means ($F(9, 38) = 3.34, p < .001$). Tukey's HSD was used to figure differences between the faculty perceptions of students' sense of community pre-survey score means among all of the disciplines. Sociology faculty had significantly lower level perceptions of students' sense of community than English Composition or English Literature teachers. Tukey's HSD was also used to measure the differences between faculty

perceptions of students' sense of community post-survey score means across all of the disciplines. In this analysis, several significant results existed. English literature faculty had significantly higher perceptions of students' sense of community than biology, philosophy, and psychology faculty. Communication Studies and English Composition faculty had significantly higher levels of students' sense of community than philosophy professors.

Race. Two-tailed dependent t-tests were conducted to compare faculty perceptions of students' sense of community across races (Black/African American, Hispanic, Other, and White). No significant differences between the pre-survey and post score means were found for any of the races (see Table 17).

Table 17

Pre-survey and Post-survey Faculty Perceptions of Students' Sense of Community Scores and T-test Results by Race

Race	Faculty Pre-survey			Faculty Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Black/African American	56.75	10.16	[46.79, 66.71]	56.50	12.13	[44.61, 68.39]	0.09	3	.94
Hispanic	52.0	2.0	[49.23, 54.77]	50.50	5.5	[42.88, 58.12]	0.20	1	.87
Other	58.0	2.0	[55.23, 60.77]	58.0	0.0	[58.0]	0.0	1	1.0
White	56.73	6.34	[54.77, 58.69]	57.0	6.05	[55.13, 58.87]	-0.33	39	.75

A one-way ANOVA test was used to measure differences of faculty perceptions of students' sense of community across the races. No significant differences were determined between the pre-survey score means ($F(3, 44) = .31, p = .82$) or the post-survey score means ($F(3, 44) = .58, p = .63$).

Online courses taught. Using two-tailed dependent t-tests, the researcher measured faculty perceptions of students' sense of community based on the number of online courses faculty had taught (0, 1-2, 3-4, 5-6, 7) prior to the class beginning. No significant differences were found (see Table 18).

Table 18

Pre-survey and Post-survey Faculty Perceptions of Students' Sense of Community Scores and T-test Results by Online Courses Taught

Online Courses Taught	Faculty Pre-survey			Faculty Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
1-2	53.25	3.03	[50.28, 56.22]	53.75	5.4	[48.46, 59.04]	-0.16	3	.88
3-4	63.67	4.92	[58.1, 69.24]	66.67	3.30	[62.94, 70.4]	-0.6	2	.61
5-6	56.25	3.90	[52.43, 60.07]	57.75	1.09	[56.68, 58.82]	-0.55	3	.62
7	56.41	7.23	[54.08, 58.74]	56.14	6.86	[53.93, 58.35]	0.32	36	.75

NOTE Only one faculty member had no online experience

A one-way ANOVA test was calculated to compare faculty perceptions of students' sense of community pre-survey score means related to online course experience, and a second one-way ANOVA was used to compare the post-survey score means. No significant difference was determined for the pre-survey score means ($F(3, 43) = 1.36, p = .27$) or for the post-survey score means ($F(3, 43) = 2.7, p = .06$).

Sense of community. Although limited significant results existed within the various comparisons of faculty pre-survey mean scores to post-survey means scores, the researcher analyzed each question within the survey using two-sample dependent t-tests (see Table 19). A significant increase occurred in faculty perceptions of students' believing that they cared more about each other at the end of the semester than near the beginning of the term. Based on high

scores in the post-survey survey, the top five faculty perceptions of students' sense of community were: "course promotes a desire to learn," "students feel encouraged to ask questions," "receive timely feedback," "educational needs are being met," and "can get help when have a question." "Students are given ample opportunities to learn" was sixth.

Table 19

Pre-survey and Post-survey Faculty Perceptions of Students' Sense of Community Scores and T-test Results by Individual Question

Sense of Community Questions	Faculty Pre-survey			Faculty Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Feel students in course care about each other	2.71	.54	[2.56, 2.86]	2.79	.54	[2.64, 2.94]	-1.07	47	.29
Feel encouraged to questions	3.35	.53	[3.20, 3.50]	3.29	.54	[3.14, 3.44]	.829	47	.41
Feel connected to others in this course	2.69	.62	[2.51, 2.87]	2.73	.57	[2.57, 2.89]	-.47	47	.64
Feel hard to get help when have question*	3.17	.52	[3.02, 3.32]	3.15	.58	[2.99, 3.31]	.28	47	.79
Do not feel a spirit of community*	2.77	.70	[2.57, 2.97]	2.62	.64	[2.44, 2.8]	1.41	46	.16
Feel that I receive timely feedback	3.13	.49	[2.99, 3.27]	3.25	.53	[3.1, 3.4]	-1.43	47	.16
Feel course is like a family	2.02	.44	[1.90, 2.14]	2.02	.48	[1.88, 2.16]	0.0	47	1.0
Feel uneasy exposing gaps in understanding*	2.68	.66	[2.49, 2.87]	2.68	.52	[2.53, 2.83]	0.0	46	1.0
Feel isolated in the course*	2.98	.49	[2.84, 3.12]	2.89	.57	[2.73, 3.05]	1.0	45	.32
Feel reluctant to speak openly*	3.06	.43	[2.94, 3.18]	3.08	.50	[2.94, 3.22]	-.38	47	.71
Trust others in this course	2.79	.41	[2.67, 2.91]	2.77	.48	[2.63, 2.91]	.28	46	.79
Feel this course results in only modest learning*	3.04	.65	[2.86, 3.22]	2.96	.68	[2.77, 3.15]	.73	47	.47
Feel that I can rely on others in this course	2.57	.54	[2.42, 2.72]	2.55	.50	[2.41, 2.69]	.28	46	.79
Feel that other students do not help me learn*	2.92	.54	[2.77, 3.07]	2.81	.57	[2.65, 2.97]	1.22	47	.23
Feel members of course depend on me	2.23	.59	[2.06, 2.40]	2.35	.57	[2.19, 2.51]	-1.1	47	.28
Feel that am given ample opportunities to learn	3.17	.43	[3.05, 3.29]	3.10	.52	[2.95, 3.25]	.83	47	.41
Feel uncertain about others**	2.41	.54	[2.25, 2.57]	2.72	.62	[2.54, 2.9]	-2.73	45	.01
Feel educational needs are not being met*	3.19	.53	[3.04, 3.34]	3.21	.54	[3.06, 3.36]	-.28	47	.79
Feel confident others will support me	2.74	.53	[2.59, 2.89]	2.74	.53	[2.59, 2.89]	0.0	46	1.0

Feel course does not promote desire to learn*	3.3	.51	[3.15, 3.45]	3.34	.48	[3.20, 3.48]	-.70	46	.49
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*Questions are reverse scored

** Significant at $p < .05$ and reversed scored

Connectedness and learning subscales. Two-tailed dependent t-tests were calculated to determine faculty perceptions of students' sense of community within Rovai's (2002b) two subscales of connectedness and learning. The faculty pre-survey score mean for connectedness was 25.67 (3.84), 95% CI [24.58, 26.76], and the faculty post-survey score mean for connectedness was 25.92 (4.06), 95% CI [24.77, 27.07]. The faculty pre-survey score mean for learning was 30.92 (3.7), 95% CI [29.87, 31.97], and the faculty post-survey score mean for learning was 30.81 (3.59), 95% CI [29.8, 31.84]. No significant differences were found between the pre-survey score means or post-survey score means on either the connectedness ($t(47) = -.45$, $p = .65$) or learning subscales ($t(47) = .29$, $p = .77$).

Summary of Significant Results

Five statistically significant findings existed within the various measurements of faculty perception of students' sense of community from early in the semester to the end of term. They included:

- Full-time faculty pre-survey score means were significantly lower than the pre-survey score means of part-time faculty
- Sociology faculty had significantly lower perceptions of students' sense of community during the pre-survey than English Composition or English Literature faculty
- Biology, philosophy, and psychology faculty had significantly lower perceptions of students' sense of community during the post-survey than English literature faculty
- Philosophy faculty post-survey score means were significantly lower than Communication Studies and English Composition instructors.

- Within the 20 individual sense of community questions, a statistically significant result existed in only one, “Students feel uncertain about others in the course.”

Research Question 3: What are the differences between student perceptions of community and faculty perceptions of students’ sense of community at two distinct times of the semester? Using pre-survey data and post-survey data, the researcher conducted two-tailed independent t-tests to calculate mean student differences by individual course, total population, gender, enrollment/employment status, age range, academic discipline, race, and total number of online courses completed/taught between students and faculty. Minimal significant differences between faculty and student pre-survey and post-survey score means on the sense of community scale existed.

Individual course. Table 20 provides the student and faculty sense of community pre-survey and post-survey score means and mean differences for each individual course.

Table 20

Mean Scores and Mean Differences of Students' Sense of Community as Perceived by Students and Faculty

Course	<u>Students</u>			<u>Faculty</u>		
	Pre-survey M	Post-survey M	Mean Difference	Pre-survey M	Post-survey M	Mean Difference
BIO 101 (1)	60	53.8	-6.2	55	52	-3
BIO 101 (2)	58	51.3	-6.7	52	54	+2
BIO 101 (3)	62	47.5	-14.5	49	47	-2
BIO 102 (4)	60.6	58.4	-2.2	52	51	-2
BIO 102 (5)	53	52	-1	59	NA	
BIO 102 (6)	55.8	52.2	-3.6	59	NA	
BIO (7)	56.2	56	-.2	56	57	+1
BIO (8)	NA			57	58	+1
BIO (9)	53	56.5	+3.5	50	56	+6
CST (11)	50.3	50.7	-.4	70	66	-4
CST 110 (12)	54.8	53.3	-1.5	57	52	-5
CST 110 (13)	63.3	66	+2.7	55	51	-4
CST 110 (14)	NA			58	63	+5
CST (15)	59.5	51	-8.5	63	71	+8
ENG 111 (16)	60.5	55	-5.5	56	58	+2
ENG 111 (17)	56.1	55.4	-.7	60	58	-2
ENG 111 (18)	58	50.6	-7.4	57	62	+5
ENG 112 (19)	58.7	58.7	0	59	56	-3
ENG 112 (20)	53.5	64.5	+11	50	59	+9
ENG 112 (21)	60.4	62.3	+1.9	64	63	-1
ENG 112 (22)	67	60.5	-6.5	64	74	+10
ENG 112 (23)	57.8	64	+6.2	60	63	+3
ENG 112 (24)	65.8	67.5	+1.7	68	55	-13
ENG 112 (25)	54.6	57.4	+2.8	71	59	-12
ENG 236 (26)	57.5	58.3	+.8	59	59	0
ENG 236 (27)	60	62.3	+2.3	54	60	+6
ENG (28)	65.8	64.2	-1.6	69	72	+3
ENG (29)	56.7	56.2	-.5	71	69	-2
GEO (30)	55.5	56	+.5	48	NA	
GEO (31)	55.3	55.8	+.5	51	NA	
HIS (32)	57.2	58.8	+1.6	55	55	0
HIS (33)	64.3	57.7	-6.6	56	56	0
HIS (34)	55.3	49.8	-5.5	55	57	+2
HIS 121 (35)	55.8	53.2	-2.6	51	52	+1

HIS 121 (36)	49.7	49.7	0	50	53	+3
HIS 122 (37)	63.5	64.2	+7	51	55	+4
HIS 122 (38)	55.8	57.7	+1.9	67	66	-1
HUM (39)	62.5	63.7	+1.2	61	55	-6
HUM (40)	53.3	58.3	+5	51	55	+4
MTH (41)	53.5	56.2	+2.7	56	58	+2
MTH (42)	64.8	50	-14.8	56	58	+2
MTH (43)	59.4	55.2	-4.2	56	54	-2
MTH (44)	52.5	51.8	-.7	NA	51	
MTH (45)	60.3	55.7	-4.6	56	56	0
MTH (46)	51.3	56	+4.7	58	56	-2
MTH (47)	64	57	-7	58	52	-6
PHI (48)	61.4	54.4	-7	45	44	-1
PHI (49)	53.8	50.5	-3.3	49	45	-4
PLS (50)	53.3	51.5	-1.8	NA	NA	
PLS (51)	61.9	56.4	-5.5	NA	NA	
PSY (52)	57.7	57.3	-.4	53	50	-3
PSY (53)	59.4	54.7	-4.7	54	45	-9
SOC 200 (54)	56.2	53.2	-3	40	45	+5
SOC 200 (55)	60	61.6	+1.6	41	51	+10
SOC (56)	60.7	57.7	-3	61	60	-1

Note Class numbers were removed from courses in which there was only one section included in survey

Note One course was removed because no pre-survey and post-survey existed for students or faculty

Table 21 shows the number of courses in which the student and faculty perceptions of students' sense of community declined, increased, or remained the same.

Table 21

Student and Faculty Changes in Sense of Community Scores from Pre-survey to Post-survey

Group	Decline	Increase	No Change
Students	32	19	2
Faculty	22	22	4

Table 22 compares the differences between students and faculty perceptions of students' sense of community from pre-surveys to post-surveys. Sense of community scores rose in fewer than 20% of the courses for both students and faculty.

Table 22

Sense of Community Mean Score Differences from Pre-survey to Post-survey between Students and Faculty within Same Courses

Differences in Sense of Community	Number
Students Down, Faculty Up	10
Students Up, Faculty Down	7
Both Down	14
Both Up	8
Students Even, Faculty Down	1
Students Even, Faculty Up	1
Students Up, Faculty Even	2
Students Down, Faculty Even	2

Note Only 45 total classes had at least one student and faculty valid pre-survey and post-survey score

Total population. Two two-tailed independent t-tests were calculated to compare student and faculty sense of community pre-survey score mean differences and then post-survey score mean differences. The student pre-survey score mean was 58.18 (7.42), 95% CI [57.29, 59.07], and the faculty pre-survey score mean was 56.58 (6.91), 95% CI [54.63, 58.53]. The student post-survey score mean was 56.45 (9.1), 95% CI [55.36, 57.54], and the faculty post-survey score mean was 56.73 (6.77), 95% CI [54.81, 58.65]. No significant difference between student

to faculty sense of community pre-survey score means ($t(315) = 1.38, p = .17$) or post-survey score means ($t(315) = -.2, p = .84$) was found.

Gender. Two-tailed dependent t-tests were used to compare student and faculty sense of community pre-survey score mean differences and then post-survey score mean differences based on gender. The pre-survey score mean for female students was 58.06 (7.34), 95% CI [57.11, 59.01], and the pre-survey score mean for female faculty was 57.29 (7.34), 95% CI [54.86, 59.72]. No significant difference between female student and female faculty sense of community pre-survey score means existed ($t(262) = .58, p = .56$). The post-survey score mean for female students was 56.52 (9.08), 95% CI [55.32, 57.68], and the post-survey score mean for female faculty was 57.31 (7.27), 95% CI [54.90, 59.72]. No significant difference between female student and female faculty sense of community post-survey scores was found ($t(262) = -.49, p = .62$).

For males, the student pre-survey score average was 58.85 (7.88), 95% CI [56.41, 61.29], and the faculty pre-survey score mean was 54.69 (5.12), 95% CI [51.91, 57.47]. No significant difference for males was found between sense of community pre-survey score means of students and faculty ($t(51) = 1.75, p = .086$). The male student post-survey score mean was 56.08 (9.27), 95% CI [53.21, 58.95], and the faculty post-survey score mean was 55.15 (4.85), 95% CI [52.51, 57.79]. No significant difference between student and faculty sense of community post-survey scores was found ($t(51) = .34, p = .74$).

Enrollment/employment status. Two-tailed independent t-tests were calculated to compare students and faculty sense of community pre-survey mean scores and then the post-survey mean scores based on enrollment/employment status. The pre-survey score mean for part-time students was 58.08 (6.58), 95% CI [56.93, 59.25], and the pre-survey score mean for part-

time faculty was 58.52 (7.43), 95% CI [55.72, 61.32]. No significant difference between part-time students and part-time faculty sense of community pre-survey score means was determined ($t(148) = -.29, p = .77$). The post-survey score mean for part-time students was 56.11 (7.9), 95% CI [54.71, 57.51], and the post-survey score mean for part-time faculty was 57.78 (8.4), 95% CI [54.61, 60.95]. No significant difference between part-time student and part-time faculty sense of community post-surveys scores was found ($t(148) = -.97, p = .33$). The pre-survey score average for full-time students was 58.25 (8.06), 95% CI [56.94, 59.56], and the pre-survey score average for full-time faculty was 54.1 (5.22), 95% CI [51.87, 56.33]. A significant difference from full-time student sense of community pre-survey score means to full-time faculty sense of community pre-survey score means was determined ($t(165) = 2.28, p = .023$). The post-survey score mean for full-time students was 56.73 (10), 95% CI [55.11, 58.35], and the post-survey score mean for full-time faculty was 55.38 (3.27), 95% CI [53.98, 56.78]. No significant difference from full-time student post-survey scores to full-time faculty sense of community post-survey scores was determined ($t(165) = .61, p = .54$).

Age range. Two-tailed independent t-tests were used to compare students and faculty sense of community pre-survey mean scores based on age range. No faculty members were between the ages of 18-23, and no students were 61 or over; therefore, those two age groups were not used. Four age groups were analyzed (24-30, 31-40, 41-50, and 51-60), and no significant differences were found between students and faculty sense of community pre-survey scores within any age group (see Table 23).

Table 23

Pre-survey Differences between Students and Faculty Perceptions of Students' Sense of Community Score Means and T-test Results by Age Range

Age	Student Pre-survey			Faculty Pre-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
24-30	60.05	6.96	[58.32, 61.78]	60.43	10.90	[51.96, 68.10]	-0.14	67	.89
31-40	56.34	7.39	[54.80, 58.48]	56.86	4.69	[54.40, 59.32]	-0.13	74	.90
41-50	60.68	8.10	[57.30, 64.06]	57.45	4.16	[54.99, 59.91]	1.2	31	.23
51-60	54.0	4.95	[49.15, 58.85]	55.55	7.75	[50.92, 60.08]	-0.29	13	.78

NOTE The 18-23 and 61+ age groups were removed because no faculty were 18-23 and no students were 61+

Two-tailed independent t-tests were used to compare students and faculty sense of community post-survey mean scores based on age. No significant differences were found (see Table 24).

Table 24

Post-survey Differences between Students and Faculty Perceptions of Students' Sense of Community Score Means and T-test Results by Age Range

Age	Student Post-survey			Faculty Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
24-30	56.48	9.80	[54.04, 58.92]	57.14	9.93	[49.78, 64.50]	-0.16	67	.87
31-40	55.48	9.14	[53.20, 57.76]	56.86	5.82	[53.81, 59.91]	-0.53	74	.60
41-50	58.73	10.58	[54.31, 63.15]	57.09	5.04	[54.11, 60.07]	0.47	31	.64
51-60	57.0	7.10	[50.04, 63.96]	58.36	7.01	[54.22, 62.50]	-0.36	13	.72

NOTE The 18-23 and 61+ age groups were removed because no faculty were 18-23 and no students were 61+

Academic Discipline. Two-tailed independent t-tests were figured to determine differences between student and faculty sense of community pre-survey score means based on academic discipline (see Table 25). The only significant difference was in sociology where students had a significantly higher sense of community pre-survey score mean than faculty ($t(17) = 2.55, p = .02$).

Table 25

Pre-survey Differences between Students and Faculty Perceptions of Students' Sense of Community Score Means and T-test Results by Academic Discipline

Academic Discipline	Student Pre-survey			Faculty Pre-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Biology	57.42	6.99	[55.24, 59.68]	53.0	2.83	[50.9, 55.1]	1.61	43	.11
Communication	57.84	9.38	[53.62, 62.06]	60.60	5.39	[55.88, 65.32]	-0.6	22	.55
English Composition	59.46	6.74	[57.51, 61.41]	60.90	5.79	[57.31, 64.49]	-0.62	54	.54
English Literature	59.94	7.58	[56.44, 63.44]	63.25	7.01	[56.38, 70.12]	-0.76	20	.45
History	58.14	7.45	[55.71, 60.57]	55.0	5.37	[51.02, 58.98]	1.04	41	.31
Humanities	59.44	8.15	[54.12, 64.76]	56.0	5.0	[49.07, 62.93]	0.52	9	.62
Math	57.10	7.61	[54.48, 59.62]	56.67	0.94	[55.92, 57.42]	0.14	39	.89
Philosophy	58.0	8.96	[52.15, 63.85]	47.0	2.0	[44.23, 49.77]	1.56	9	.15
Psychology	59.0	8.71	[54.07, 63.93]	53.50	0.5	[52.81, 54.19]	0.83	12	.42
Sociology*	59.06	6.25	[56.0, 62.12]	47.30	9.67	[36.36, 58.24]	2.55	17	.02

*Significant $p < .05$

NOTE Geography and political science were removed because no faculty completed a pre-survey and post-survey survey

Two-tailed independent t-tests were used to compare student and faculty sense of community post-survey score means based on academic discipline. No significant differences were found (see Table 26).

Table 26

Post-survey Differences between Students and Faculty Perceptions of Students' Sense of Community Score Means and T-test Results by Academic Discipline

Academic Discipline	Student Post-survey			Faculty Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Biology	54.79	9.96	[51.62, 57.96]	53.57	3.58	[50.92, 56.22]	0.44	43	.66
Communication	54.58	12.91	[48.77, 60.39]	60.60	7.86	[53.71, 67.49]	-0.95	22	.35
English Composition	58.85	10.20	[55.90, 61.80]	60.70	5.14	[57.51, 63.89]	-0.55	54	.59
English Literature	59.89	8.45	[55.99, 63.72]	65.0	5.61	[59.50, 70.5]	-1.1	20	.28
History	56.61	8.47	[53.74, 59.28]	56.29	4.23	[53.16, 59.42]	0.10	41	.92
Humanities	61.89	7.26	[57.15, 66.63]	55.0	0.0	[55.0]	1.2	9	.26
Math	54.57	7.55	[52.07, 57.07]	55.67	2.13	[53.97, 57.37]	-0.34	39	.73
Philosophy	52.67	13.39	[43.92, 61.42]	44.50	0.50	[43.81, 45.19]	0.78	9	.46
Psychology	55.33	5.20	[52.39, 58.27]	47.50	2.5	[44.04, 50.96]	1.93	12	.08
Sociology	57.50	7.36	[53.89, 61.11]	52.0	6.16	[45.03, 58.97]	1.15	17	.27

NOTE Geography and political science were removed because no faculty completed a pre-survey and post-survey survey

No academic discipline showed an increase in both student and faculty sense of community score means from pre-survey to post-survey. The English literature students score mean remained the same, and the faculty score mean increased. The humanities, English composition, and English literature classes had the highest sense of community ratings by students whereas the English literature, communication studies, and English composition courses had the highest sense of community ratings by faculty. The largest student decline in sense of community score means was in philosophy, and the highest (and only) student increase in sense of community was in humanities. For faculty, the largest sense of community decline was in humanities, and the highest increase was in sociology (see Table 27).

Table 27

Pre-survey to Post-survey Mean Differences of Students and Faculty Perceptions of Students' Sense of Community by Academic Discipline

Discipline	<u>Students</u>			Pre-survey M	<u>Faculty</u>	Mean Difference
	Pre-survey M	Post-survey M	Mean Difference		Post-survey M	
Biology	57.4	54.8	-2.6	54.8	53.6	-1.2
Communication	57.8	54.6	-3.2	60.6	60.6	0
English Composition	59.5	58.9	-.6	60.9	60.7	-.2
English Literature	59.9	59.9	0	63.3	65	+1.7
History	58.1	56.7	-1.4	55	56.3	+1.3
Humanities	59.4	61.9	+2.5	61.9	55	-6.9
Math	57.1	54.6	-2.5	56.7	55.7	-1
Philosophy	58	52.7	-5.3	47	44.5	-2.5
Psychology	59	55.3	-3.7	53.5	47.5	-6
Sociology	59.1	57.5	-1.6	47.3	52	+4.7

NOTE Geography and political science were removed because no faculty completed a pre-survey and post-survey survey

Race. Using two-tailed independent t-tests, a comparison of student and faculty sense of community pre-survey score mean differences across races (Black/African American, Hispanic, Other, and White) was conducted. No significant differences were found (see table 28).

Table 28

Pre-survey Differences between Students and Faculty Perceptions of Students' Sense of Community Score Means and T-test Results by Race

Race	<u>Student Pre-surveys</u>			<u>Faculty Pre-surveys</u>			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Black/African American	57.68	8.34	[54.41, 60.95]	56.75	10.16	[46.79, 66.71]	0.19	27	0.85
Hispanic	55.85	7.72	[51.65, 60.05]	52.0	2.0	[49.23, 54.77]	0.65	13	0.53
Other	59.33	8.41	[55.07, 63.59]	58.0	2.0	[55.23, 60.77]	0.21	15	0.84
White	58.30	7.30	[57.33, 59.27]	56.73	6.34	[54.77, 58.69]	1.28	254	0.20

Using two-tailed independent t-tests, a comparison of student and faculty sense of community post-survey score mean differences across races (Black/African American, Hispanic, Other, and White) was conducted. No significant differences were found (see Table 29).

Table 29

Post-survey Differences between Students and Faculty Perceptions of Students' Sense of Community Score Means and T-test Results by Race

Race	Student Post-survey			Faculty Post-survey			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Black/African American	57.76	9.03	[54.22, 61.30]	56.50	12.13	[44.61, 68.39]	.24	27	.81
Hispanic	55.0	6.76	[51.33, 58.67]	50.50	5.5	[42.88, 58.12]	.83	13	.42
Other	53.0	9.95	[48.12, 57.88]	58.0	0	[58]	-.67	15	.51
White	56.63	9.12	[55.41, 57.85]	57.0	6.05	[55.13, 58.87]	-.25	254	.80

Online courses completed/taught. Using two-tailed independent t-tests, a comparison of student and faculty sense of community pre-survey score mean differences based on number of online courses completed/taught before beginning of term was conducted. No significant differences were found (see Table 30).

Table 30

Pre-survey Differences between Students and Faculty Perceptions of Students' Sense of Community Score Means and T-test Results by Number of Online Courses Completed/Taught

Experience	<u>Student Pre-survey</u>			<u>Faculty Pre-survey</u>			t	df	p
	M	SD	95% CI	M	SD	95% CI			
1-2	58.60	8.12	[56.58, 60.62]	53.25	3.03	[50.28, 56.22]	1.29	64	.20
3-4	58.10	6.86	[56.33, 59.87]	63.67	4.92	[58.1, 69.24]	-1.27	159	.21
5-6	60.03	7.97	[57.35, 62.71]	56.25	3.90	[52.43, 60.07]	0.91	36	.37
7	57.51	6.82	[55.74, 59.28]	56.41	7.23	[54.08, 58.74]	0.62	91	.54

NOTE Only one faculty member had no online experience

Using two-tailed independent t-tests, a comparison of student and faculty sense of community post-survey score mean differences based on number of online courses completed/taught before beginning of term was conducted. Faculty with 3-4 previous online course experiences maintained a significantly higher sense of community than students with the same level of online experience ($t(59) = -2.08$ $p = .04$ (see Table 31).

Table 31

Post-survey Differences between Students and Faculty Perceptions of Students' Sense of Community Score Means and T-test Results by Number of Online Courses Completed/Taught

Experience	<u>Student Post-survey</u>			<u>Faculty Post-survey</u>			t	df	p
	M	SD	95% CI	M	SD	95% CI			
1-2	57.61	8.32	[55.54, 59.68]	53.75	5.40	[48.46, 59.04]	0.9	64	.37
3-4*	57.28	7.52	[55.34, 59.22]	66.67	3.30	[62.94, 70.4]	-2.08	59	.04
5-6	58.03	12.83	[53.72, 62.34]	57.75	1.09	[56.68, 58.82]	0.04	36	.97
7	55.14	8.03	[53.06, 57.22]	56.14	6.86	[53.93, 58.35]	-0.61	91	.54

*Significant $p < .05$

NOTE Only one faculty member had no online experience

Connectedness and learning. Two-tailed independent t-tests were calculated to determine if students and faculty differed in their perceptions of students' sense of connectedness and/or learning early in the semester compared to the end of the term. The comparison of student pre-survey score means to faculty pre-survey score means did not reveal significant results for either connectedness or learning, and no significant difference existed between student post-survey scores and faculty post-survey scores on connectedness and learning. Tables 32 and 33 present the connectedness and learning scores by pre-survey score means and post-survey score means, respectively.

Table 32

Connectedness and Learning Pre-survey Score Mean Comparisons and T-test Results between Students and Faculty

	<u>Student Pre-survey</u>			<u>Faculty Pre-survey</u>			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Connectedness	26.94	4.78	[26.37, 27.51]	25.67	3.84	[24.58, 26.76]	1.85	315	.06
Learning	31.24	4.08	[30.75, 31.73]	30.92	3.70	[29.87, 31.97]	0.51	315	.61

Table 33

Connectedness and Learning Post-survey Score Mean Comparisons and T-test Results between Students and Faculty

	<u>Student Post-survey</u>			<u>Faculty Post-survey</u>			t	df	p
	M	SD	95% CI	M	SD	95% CI			
Connectedness	26.12	5.49	[25.46, 26.78]	25.92	4.06	[24.77, 27.07]	0.25	315	.81
Learning	30.33	4.81	[29.76, 30.90]	30.82	3.59	[29.8, 31.84]	-0.65	315	.51

Summary of Significant Results

Three statistically significant findings existed when comparing student to faculty perceptions of students' sense of community. They included:

- Full-time student pre-survey score means were significantly higher than full-time faculty pre-survey score means
- Sociology students had significantly higher pre-survey score means than the sociology faculty
- Students with three to four years of online experience had significantly lower perceptions of students' sense of community than faculty with three to four years of online course experience.

Question 4: Is there a correlation between students' sense of community and final course grade? Using pre-survey data and post-survey data, the researcher used two-tailed dependent t-tests to explore student differences by final course grades attained in the courses. No significant differences existed between students' sense of community pre-survey and post-survey score means based on final course grades. Using post-survey data from weeks 13 and 14, the researcher conducted Pearson correlation coefficients to calculate relationships between students' sense of community by individual course, total population, gender, enrollment status, age, academic discipline, race, and total number of online courses completed to final course grades. Several positive correlations were found. The researcher first provides the grade distribution and then addresses the correlational data. Table 34 displays the grade distribution for the students completing pre-survey and post-survey surveys.

Table 34

Student Grade Distribution and Percentages and Students' Sense of Community Post-survey Score Means by Grades

Grades	# of students	%	Sense of Community Score Mean
A	124	46.1%	58.13
B	84	31.2%	55.69
C	40	14.9%	54.13
D	10	3.7%	53.30
F	7	2.6%	52.86
I	3	1.1%	58

NOTE One student received an S grade in a developmental math course

Total population. A Pearson correlation coefficient was calculated to explore the relationship between course grades and students' sense of community post-survey scores. A small positive correlation was found ($r(267) = .18$, $p = .003$) showing a significant linear relationship between final course grades and students' sense of community at the end of week 14.

Gender. Pearson correlation coefficients were calculated to determine the relationship between final course grades and students' sense of community post-survey scores based on gender (see Table 35). A small positive correlation was found ($r(226) = .18$, $p = .007$) showing a significant linear relationship between grades and sense of community perceived by female students. No significant linear relationship was found for males ($r(38) = .22$, $p = .17$).

Table 35

Students' Sense of Community Post-survey Scores Correlated to Final Course Grades Based on Gender

Gender	r	n	p
Females*	.18	229	.007
Males	.22	40	.17

*Significant $p < .05$

Enrollment status. Two Pearson correlation coefficients were calculated to determine the relationship between final course grades and students' sense of community post-survey scores based on enrollment status. A small positive correlation was found for full-time students ($r(143) = .19, p = .023$) and part-time students ($r(121) = .18, p = .046$). A significant linear relationship exists between final course grades and students' sense of community post-survey scores for both full-time and part-time students (see Table 36).

Table 36

Students' Sense of Community Post-survey Scores Correlated to Final Course Grades Based on Enrollment Status

Enrollment Status	r	n	p
Full-time Students*	.19	145	.023
Part-time Students*	.18	123	.046

*Significant $p < .05$

Age. Pearson correlation coefficients were calculated to determine the relationship between final course grades and students' sense of community post-survey scores based on age. Two small significant relationships were found, one for 24-30 year old students, ($r(60) = .27, p = .037$) and the other for the 31-40 year old students, ($r(60) = .27, p = .035$) (see Table 37).

Table 37

Students' Sense of Community Post-survey Scores Correlated to Final Course Grades Based on Age

Age Range	r	n	p
18-23	.1	118	.31
24-30*	.27	62	.037
31-40*	.27	62	.035
41-50	.16	22	.48
51-60	0.0	4	1.0

*Significant $p < .05$

Academic discipline. Pearson correlation coefficients were calculated to determine relationship between final course grades and students' sense of community post-survey scores based on discipline and then on the number of online courses students had completed. No significant results were found as seen in Table 38 and Table 39.

Table 38

Students' Sense of Community Post-survey Scores Correlated to Final Course Grades Based on Academic Discipline

Discipline	r	n	p
Biology	-.06	38	.74
Communication Studies	.27	19	.26
English Composition	.29	49	.054
English Literature	.24	18	.34
Geography	-.42	20	.07
History	.31	36	.06
Humanities	-.01	9	.98
Math	.30	34	.09
Philosophy	.13	9	.74
Political Science	.23	11	.51
Psychology	.09	12	.77
Sociology	.30	16	.26

Table 39

Students' Sense of Community Post-survey Scores Correlated to Final Course Grades Based on Number of Online Courses Completed

Online Courses Completed	r	n	p
0	.16	58	.23
1-2	.18	62	.17
3-4	.15	58	.26
5-6	.33	33	.06
7	.09	57	.50

Race. A Pearson correlation coefficient was calculated to determine the relationship between final course grades and students' sense of community post-survey scores based on race. A small significant relationship was found for white students, ($r(213) = .21$, $p = .002$) (see Table 40).

Table 40

Students' Sense of Community Post-survey Scores Correlated to Final Course Grades Based on Race

Race	r	n	p
Black/African American	.38	25	.18
Hispanic	-.04	13	.90
Other	.55	15	.17
White*	.21	215	.002

*Significant $p < .05$

Summary of Significant Results

Several correlations existed relating students' sense of community to their final course grade. They included:

- Total population
- Females
- Full-time and part-time students
- Students between ages of 24-30 and 31-40
- White students

Conclusion

This chapter provided an overview of results, and the researcher identified four main conclusions.

1. Students' sense of community declined from the beginning of the semester to the end of the term within many of the categories measured.

2. Few significant differences resulted when comparing faculty perceptions of students' sense of community pre-survey score means to post-survey score means.
3. Few significant differences resulted when comparing pre-survey score means and then post-survey score means of students' sense of community to faculty members' perceptions of students' sense of community.
4. A positive correlation exists in many aspects between students final course grades and students' sense of community post-survey scores.

A discussion of findings, implications, future study, and limitations is addressed in Chapter 5.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter 5 provides a summary of students' sense of community as perceived by students and their instructors at two points of an academic semester and offers conclusions and recommendations based on the results. This chapter provides an overview, addresses significant findings for each of the four research questions, details implications of the findings, offers ideas for future research, and gives conclusions of the study.

Overview

Using a revised version of Rovai's sense of community scale (Rovai, 2002b), the researcher sought to review differences of students' sense of community as perceived by students and faculty from the early stages of the semester to the end of the term within online arts and sciences courses at a medium sized community college in Virginia. Shea et al. (2005) suggests that a sense of community is imperative for successful, well groomed online community college programs. People identify with groups (Wilson, 2001), and connectedness is a key component for online learning (Gibbs, 1995; Motteram & Forrester, 2005). Missing from the research, especially in community colleges, was an exploration of perceptual differences between and among students and faculty related to their sense of community in their individual online courses at two distinct points during a semester. Measuring students' perception helps identify what is most and least important to students (Herbert, 2006), helping faculty better understand student needs. Faculty members are willing to modify online courses based on assessment and feedback (Dolloph, 2007); therefore, if student perceptions are provided to faculty, they will have feedback on what is believed to be effective (or not) within the online course environment. Having information on students' perceptions of their sense of community and the correlation of

sense of community to final course grades may assist faculty in developing their online courses. Faculty will have the opportunity to compare their perceptions of students' sense of community to the student responses to determine how they differ. Liu et al. (2007) articulated that faculty have admitted needing assistance with developing a sense of community in online courses and understanding students' perceptions compared to their own may give them pertinent feedback to improve online instruction.

Discussion

This section summarizes and discusses the findings for each of the four research questions.

Research Question 1: Do student perceptions of their sense of community within their online courses change during the semester? Several significant differences emerged between students' sense of community pre-survey and post-survey score means, all of which indicated a decline in students' perceptions of their sense of community as the semester progressed. Overall, students reported a higher sense of community after week 3 of the semester than they did after week 14 in many of the tested variables.

When comparing students' perceptions of their sense of community pre-survey score means to the post-survey score means of the total population (269), a significant decline existed. This result conflicted with Rovai and Jordan's (2004) findings in which an increase in students' sense of community score means from early in the semester to the end of the term occurred. Within the 53 individual courses used in this study, in which at least one student completed both a pre-survey and post-survey survey, 32 sustained a decline in sense of community from pre-survey to post-survey. Only in one course, a math class, was the decline statistically significant.

In this study, the differences in students' perceptions of their sense of community score means from pre-survey to post-survey for women and men contradicted Rovai & Baker (2005) and Shea et al.'s (2005) findings that women tend to have a stronger sense of community than men. Both women and men reported a significant decline in perceptions of their sense of community from the beginning of the semester to the end of term, but men had a higher pre-survey score mean (58.85) for sense of community than women (58.06). However, the men's post-survey score mean (56.08) was lower than the women's post test score mean (56.5).

Part-time students, 24-30 year old students, biology students, "Other" and white students, and students who had no online experience and the most online experience (seven or more online classes) reported significant declines in overall sense of community from week 3 to week 14. Since significant differences occurred within many of the categories examined, the researcher analyzed each individual sense of community question comparing pre-survey to post-survey score means to determine significance by individual question. The analysis resulted in students reporting a significant decline in their perceptions of sense of community score means from pre-survey to post-survey in 12 out of the 20 sense of community questions. The questions with significant declines included:

- I feel that students in this course care about each other.
- I feel that I am encouraged to ask questions.
- I do not feel a spirit of community. (reverse scored)
- I feel that I receive timely feedback.
- I feel that this course is like a family.
- I feel isolated in this course. (reverse scored)
- I feel that this course results in only modest learning. (reverse scored)

- I feel that I can rely on others in this course.
- I feel that other students do not help me learn. (reverse scored)
- I feel that I am given ample opportunities to learn.
- I feel confident that others will support me.
- I feel that this course does not promote a desire to learn. (reverse scored)

Also, a significant decline in mean sense of community scores occurred from near the beginning of the term to the end of the semester within the two subscales of connectedness and learning. This contradicted Rovai and Jordan's (2004) findings, which demonstrated an increase from pre-survey to post-survey score means for both connectedness and learning. However, Rovai and Jordan's study only examined one course, and this study had 53 courses with at least one pre-survey and post-survey survey within an entire instructional division. Nineteen of the courses used in the current study generated an increase in students' perceptions of their sense of community from early in the semester to the end of term but the majority (32) of them did not. Two remained the same. Faculty may be doing good work having students introduce themselves to one another with ice breakers early in the semester but not maintaining that level of community building throughout the course. Students enrolled in online classes who lack a feeling of community involvement may develop a sense of isolation (Slagter van Tryon & Bishop, 2009) resulting in them losing interest. Paloff and Pratt (2007) suggest faculty make contact, whether via e-mail or phone, with students who have not been active to invite them back into the course. It is possible that part-time students and students between the ages of 24-30 maintained more work and family obligations than other groups causing a difference in sense of community. More research within these subgroups may help explain why the sense of community declined.

Only 22% of the students enrolled in arts and sciences online courses throughout the semester completed both the pre-survey and post-survey surveys. The results of this study, therefore, should not be generalized to other institutions. The researcher received pre-survey and post-survey surveys from 269 (22%) students within 53 online courses in the arts and sciences division at one community college in Virginia. For many of the t-test and ANOVA calculations, the population was divided into two or more subcategories minimizing the “n” and thus the power for each subset. The largest split of the population occurred in measuring student data by individual course. The average student response per course was under five and as a result, there was only one significant result. Although the results provide pertinent information about students’ sense of community as perceived by faculty and students, Type I and/or Type II errors cannot be discounted.

Research Question 2: Do faculty perceptions of students’ sense of community within their online courses change during the semester? Four calculations resulted in statistically significant differences faculty perceptions of students’ sense of community.

- Full-time faculty pre-survey score means less than pre-survey score means of part-time faculty
- Sociology faculty pre-survey score means less than English Composition or English Literature faculty
- Biology, philosophy, and psychology faculty post-survey score means less than English literature faculty.
- Philosophy faculty post-survey score means less than Communication Studies and English Composition instructors.

Within the 20 individual sense of community questions, only the question, “Students feel uncertain about others in the course,” had a statistically significant result. Faculty thought students had significantly more awareness of other students in the class at the end of the semester than at the beginning of the term. Faculty may have seen more interaction between students via e-mail and/or discussion board leading to the increase from early in the semester to the end of term. No statistically significant result existed between faculty pre-survey and post-survey connectedness and learning subscale score means.

The majority of faculty in this research had taught at least seven online courses prior to the study. Osbourne et al., (2009) determined that experienced online faculty members were more likely than faculty with no online experience to perceive that students learned and would have positive experiences in online classes. Gibson (2005) initially believed that online learning was impersonal and not conducive to cohesion; however, he discovered a community of learners who trusted one another by the end of the online course. The current study did not reveal that a statistically significant increase in faculty perceptions of students’ sense of community existed from early in the semester to the end of the term. It is possible that faculty assumed students wanted to complete assignments individually with no community development; therefore, assignments were not designed to enhance students’ level of community. This online teaching philosophy may have existed from the start of the course, thus, producing no differences in faculty perceptions of students’ sense of community at the two distinct points of the semester.

These findings should not be generalized to faculty at other institutions around the Commonwealth or country. Although, an excellent faculty response rate of 85.7% was attained, only 48 faculty members fully participated. The split of the population to measure faculty data within different categories resulted in even lower numbers. Although the results provide

pertinent information about students' sense of community as perceived by faculty, Type I or Type II errors cannot be discounted.

Research Question 3: What are the differences between student perceptions of students' sense of community and faculty perceptions of students' sense of community at two distinct times of the semester? Three statistically significant results existed between students and faculty perceptions of students' sense of community.

- Full-time student pre-survey score means greater than full-time faculty pre-survey score means
- Sociology students pre-survey score means greater than the sociology faculty pre-survey score means
- Students with three to four years of online experience less than faculty with three to four years of online course experience.

When mean differences were reviewed course by course, only 8 of the 48 courses generated an increase in perceptions of students' sense of community from both students and faculty. Within 34% of the online courses examined, both students and faculty perceived that students' sense of community declined. The reasons for the decline in perceptions of students' sense of community from the beginning of the term to the end of the semester were not identified. However, several theories may be generated for future discussion.

- 1) The course was not designed to enhance sense of community over the course of a semester.
- 2) Students and/or faculty did not work to develop a sense of community over the course of a semester.

- 3) Students and/or faculty were “absent” from the course and not actively participating.

Students may have completed minimum requirements to meet course expectations, and/or faculty may have set the course and not been an active participant within it.

Question 4 Is there a correlation between students’ sense of community and final course grade? A positive correlation existed between student perceptions of their sense of community post-survey score means and their final course grades within several categories, including total population, female students, full-time and part-time students, 24-30 and 31-40 year-old students, and white students. Overall, students earning “A” grades reported feeling the highest sense of community at the end of the semester while those failing the courses reported feeling the lowest sense of community at the end of the term. These findings support the findings of Liu et al. (2007) who found a correlation between students’ sense of community and course grades. In the current study, out of the 269 students completing a pre-survey and post-survey sense of community survey, over 90% received an A, B, or C for their final course grade. VCCS data (2010b) found that the percentage of A, B, C grades for online courses hovered between 70 - 75%. Although grades do not define the level of student learning, it was used in this study because VCCS uses grades as a measurement for online course success, and VCC is associated with the VCCS. Aragon and Johnson (2008) determined that 28% of non-completers withdrew from online courses due to poor levels of communication. Increasing perceptions of sense of community within online courses may lead to higher overall success rates in the VCCS.

Community Research

Several studies depicted sense of community as an important factor for enhancing student success within online courses. Few studies, however, provided specific examples highlighting whether or not it existed. The minimal sample size and effect size resulted in a lower statistical

power within many of the tested variables, and results may be considered inconclusive (Cohen, 1988). That said, all students within online arts and sciences online courses at VCC had the opportunity to participate in the study, and in over half of the courses used, the sense of community declined from week 3 to week 14 of the academic semester. In addition, when examining the entire population of students completing pre-survey and post-survey surveys, the sense of community declined from beginning of semester to end of term, and the power was approximately .65. Conducting larger studies may provide a higher statistical power and help provide more conclusive results, but for VCC, it is imperative that faculty members are aware of the results. Professional development will not be created for the researcher to tell faculty what was missing, rather, it will be designed to share results and allow for critical discussion with the goal of improving the online program at VCC. Faculty at other institutions may review this research and be inclined to garner student feedback about their online courses. Faculty members do not see their online students, and they may be missing valuable information that would otherwise be attained through verbal and/or visual cues in a face-to-face setting.

Implications

Sense of community not desired but correlates to grades. Brown (2001) and Cameron, et al., (2009) suggested that some students do not desire a sense of community within online courses. They argued that these students want to acquire the knowledge desired while limiting the interactive activities among peers. The findings of the current study concur with those of Brown and Cameron et al. as 86.1% of the student respondents preferred to work individually instead of within a group. In addition, only 23 students (8.6%) stated that their educational needs were not met when group activities were omitted within the online course, and just over 25% (67) of students felt isolated when they did not interact with other students. In a study of online

graduate courses, 90% of faculty members and 85% of students believed that being part of a learning community enhanced student learning and viewed community development in online courses as important (Vesely et al., 2007). For the community college students in this study, less than 50% of students reported connectedness or the feeling of community in an online course as important. Only 123 out of 267 students (46.1%) felt that it was important to be connected during an online course, and 125 of 266 (47%) believed it was important that an online course have a community feeling.

It is evident, however, that students are willing to connect with other students, if necessary. When asked if they thought it was important that their classmates knew they could rely on them, 193 of 267 (72.3%) students answered agree or strongly agree. It is clear that the students completing this survey did not have an overwhelming desire to develop a sense of community with their peers. However, supporting the research findings of Liu et al. (2007), the researcher determined a correlation existed, although small, between students' sense of community and their final course grades for their respective classes. Liu et al. found that online students did not desire to join online communities and participate in group activities, but they found positive correlations between students' participation in a learning community and course engagement, learning, and satisfaction. Students do not necessarily want constant interaction, but they need and desire constant communication from faculty (Rodriquez & Nash, 2004). Students become frustrated when they perceive the instructor is absent, does not provide clear directions, and/or has minimal contact (Anderson et al., 2001). Dennen (2007) reported that the quality of engagement between faculty and students was most important with e-mail and clearly defined course requirements being top factors for online students. In this study, students reported that e-mail between and among students and faculty, class introductions/ice breakers, graded discussion

board postings, course announcements, and feedback from faculty most influenced their sense of community perceptions.

VCC faculty and administrators need to address the issue of community development and its importance in online courses. How can a sense of community be fostered within the online courses without students or faculty feeling burdened or overwhelmed in the process? In this research, final course grades were positively correlated, although weakly, to a higher perception of students' sense of community. Previous research examining grades and students' sense of community has been mixed. Students who felt they had strong sense of community believed that their grades were higher than those who did not (Russo & Benson, 2005). Morris, Finnegan, and Wu (2005) found that students had higher grades when having a higher rate of participation. Drouin (2008) determined that students' sense of community corresponded with student satisfaction; however, there was no correlation between students' sense of community and course grade. Voos (2003) suggested that students are more prone to leave distance courses if they do not feel a sense of community.

Faculty need to learn about the impact of community on student success and work within their individual courses to assess it over the course of an academic term. Faculty may not fully understand the requirements for good online instruction and what is involved for successful teaching (Foster, 2003; Osbourne, et al., 2009). In a face-to-face environment, faculty can gauge if students are following the instruction and engaging in class activities via verbal and nonverbal communication. In the online environment, instructors do not have as many communication monitors to examine how students are doing. Varonis' (2006) five stages for community development include introduction, identification, interaction, involvement, and inquiry. Since the majority of faculty and students' perceptions of students' sense of community either remained

relatively the same or declined, it is not apparent that all of the stages were reached. Currently, both part-time and full-time VCC faculty must complete an online training course to be considered for future online teaching assignments although some “seasoned” online faculty members have been exempt from this requirement. The course outline includes objectives related to developing community (Huff & Mersiowsky, 2011). They include

- 1) The student will be able to identify and establish social presence by creating policies for *communication and creating a personal introduction*.
- 2) The student will be able to identify and establish active learning techniques by creating a portfolio (a few modules in a course they will be or are currently teaching) that engages students and allows them to contribute to the course.
- 3) The student will be able to identify and establish the basics of a learning community within their course by establishing communication criteria.

Paloff and Pratt (2007) strongly encourage faculty members to personally contact students when they have a concern about their participation. This contact may engage the students to be active in the course after being “absent” for a period of time. They also suggest monitoring the class as a whole to ensure students are effectively using the technology, appropriately managing the course content, receiving timely feedback, and not dominating discussions. Faculty who pay attention to the course will more easily manage issues as they develop.

Online experience. Students with no previous online course experience sustained a significant decline in their sense of community score from early in the semester to the end of term. Muilenberg & Berge (2005) found students lacking online experience perceived that they would not enjoy or be as successful completing online courses; however, two-thirds of students completing the online course enjoyed studying online and had a positive learning experience.

Based on Muilenberg and Berge's study, one might conclude that students would have a lower sense of community near the start of the semester compared to the end of term but that result did not occur in this research. It is possible that students' expectations for the online course were not met, and the sense of community score was lower as a result. It is also possible that students' expectations were met and a sense of community was not important to them.

Interestingly, the scores of students who had already completed seven or more online classes also showed a significant decline in students' sense of community from the beginning of the term to the end of the semester. It is not evident if these "seasoned" online students believed their sense of community increased over the course of the semester in previous courses. It is possible that enrolling in online courses was their only mechanism for completing their education and regardless of experience (positive or negative), they were going to persist. Since most of the online courses are a minimum of three credits, it can be assumed that the vast majority of the most experienced online learners in this study have completed over 21 semester hours, which is one-third of an associate degree within VCC's transfer programs. The student online orientation program is designed for new students but perhaps, a module for advanced online learners may be beneficial to keep them engaged and motivated. Tello (2002) reported that 11% of students did not reenroll in online courses due to lack of communication from faculty.

Faculty feedback. In an examination of the previous 10 years of research, Darabi et al. (2006) recommended necessary instructor competencies required to teach online. Critical elements for course success include communicating with students, engaging students in discussions, interacting with them, and providing timely feedback. In this study, when asked about their desire for timely feedback from faculty, 99% of student respondents (265 of the 267)

agreed or strongly agreed that faculty feedback was important, mirroring research by Northrup (2002). Students want to be challenged, have some flexibility, and engage with colleagues and faculty while learning the course material, and students desire faculty who communicate openly and promptly with them (Young, 2006).

Students in this study reported that faculty members' timeliness in providing feedback significantly declined from the beginning of the term to the end of the semester. Overall, students agreed that they received timely responses but fewer than 30% strongly agreed that feedback was fast enough. Timely feedback was not defined for students in the survey; however, the general rule is to respond to e-mails within 48 hours excluding holidays, supported by the research (Mersiowsky & Huff, 2011; Paloff & Pratt, 2007). Related to submitted assignments, definitions for a timely response may be more widespread. Some students may expect a response or at least a grade almost immediately. Paloff and Pratt inform students that they will respond within one week and tell students when more time is required. Faculty should discuss the appropriate and reasonable amount of time for responses as well as the manner in which feedback will be provided within their courses. Quality Matter principles indicate that faculty should have defined timelines for responding to student communication (Legon, 2006). Faculty may also communicate openly with students about how correspondence will be conducted to avoid perceptions of being reclusive (Aragon & Johnson, 2008). In addition, faculty should provide feedback on work before students are able to make similar mistakes on additional assignments.

Professional development. The development of community has been used to explain increased student success, but faculty members have admitted that they are not aware of the sense of community in their courses or ways to create it (Liu et al., 2007). Inman et al. (2008) suggested that faculty should receive student evaluations pertaining to the online course, and

Dolloph (2007) stated faculty members are often willing to modify online courses based on assessment and feedback. Perreault et al. (2008) indicated that institutions need to continue offering professional development for online faculty and that faculty members should be encouraged to attend. Online faculty need to be informed about student and faculty perceptions of students' sense of community over the course of the semester to have the opportunity to make adjustments, as appropriate. Professional development sessions will be developed at VCC during the fall 2011 semester to discuss the results of the sense of community survey. The researcher will share facts and encourage dialogue to determine how the College, as a whole, may assess and improve its online program. He will meet with four groups including the distance learning department staff, distance learning committee members, Learning Day attendees, and faculty.

- The distance learning department includes the dean of distance learning and learning resources, instructional designer, Blackboard administrator, and Quality Enhancement Plan (QEP) coordinator. The College QEP focuses on student, faculty, and course readiness for online learning. The QEP coordinator works directly with department colleagues, faculty, and students to improve online course success.
- The distance learning committee includes online faculty from all three academic divisions of the College (Arts and Sciences, Professional and Technical Studies, and Nursing/Health Technologies). Distance learning staff usually attend the meetings, as well as an academic dean.
- Learning Day is a bi-annual event for all VCC employees to meet in one central location for a day of training and professional development. Sessions are presented on various topics, and attendees choose the ones they wish to attend.

- Full-time faculty meetings are held approximately three times a semester at VCC, and additional professional development workshops are held for full-time and part-time faculty to learn about specific topics related to instruction. To accommodate various part-time faculty schedules and in the attempt to have more participation, sessions are held on various days and at different times. The researcher will present at one of the full-time faculty meetings, and at minimum, one of the training sessions.

Professional development plan. The agenda for each meeting will include describing the literature related to sense of community in online courses, explaining the methodology used to determine sense of community in online courses at VCC, explaining results of the study, examining implications of the results, and discussing ideas for enhancing sense of community. At the distance learning department staff and distance learning committee meetings, attempts will be made to determine “expert” faculty, at VCC or elsewhere, who may lead sessions at future learning days and/or faculty meetings. The goal will be to have faculty share techniques for building a sense of community, which other online instructors may consider using for their online courses. Potential topics are listed below, and additional ones may be added. All topics will not be covered at one session; however, they each may be considered for future professional development sessions.

- Creating effective class introductions and/or ice breakers
- Facilitating meaningful discussion board forums
- Fostering productive communication from faculty to student and student to student
- Engaging students with the course content
- Fostering an inclusive online community of learners
- Communicating with the “lost” student

- Managing to provide timely feedback to students
- Developing productive course announcements
- Keeping the online student engaged

Ample time will be provided at each professional development session for questions and additional discussion so ideas may be shared among attendees.

Senior administration. The decline in sense of community from early in the semester to the end of term should be of concern to administrators. Absent faculty in face-to-face courses are quickly noticed because students often tell an administrative assistant or another faculty member that the instructor is not present. An “absent” professor within an online course may not draw the attention of administration as fast. Many institutions provide training sessions for online faculty, but do faculty members use the learned material within their online instruction? The VCC training for faculty focuses on developing community as emphasized by Paloff and Pratt (2007) and Quality Matter standards (Legon, 2006). What is the accountability for faculty after they complete training? Is there another administrator or faculty member reviewing the course content? Is the course outline reviewed to assure communication is clear and concise? Do students have opportunities to complete a course evaluation to provide feedback? These are all strategies which may be investigated by any school offering online instruction. Are faculty and students adhering to the training provided to them to be most successful in the online environment? As online learning continues to grow at such a rapid pace, administrators much ensure that faculty members are being appropriately trained, and using skills learned within their online courses. Equally as important is the orientation of students to ensure they are prepared for learning within an online format.

Implications for Future Research

Operationalizing “sense of community.” Missing from the current research is a truly operationalized definition of “community. In this study, sense of community declined over a semester. It is possible, however, that the definitions of community identified by Rovai (2002a), McMillan and Chavis (1986), and Motteram and Forrester (2005) may no longer be true for today’s college student, particularly today’s community college student. It is also possible that what instructors consider as community may not match the student view. A series of interviews and focus groups with both faculty and students could generate this definition. Care needs to be taken, however, to gather input from students and faculty who are new to distance learning as well as those who are more seasoned as expectations – and needs – may well differ depending upon experience with distance learning.

Course activities. The researcher asked students and faculty about their course activities to identify which ones they perceived led to higher perceptions of students’ sense of community in online courses. Out of the 17 choices for communication between and among students and faculty, the following five were highest rated by BOTH students and faculty: course feedback from faculty, course announcements, class introductions/ice breakers, e-mail between faculty and students, and graded discussion board forums (see Table 41). Students rated the activities from strongly disagree (1), to disagree (2), to agree (3), and strongly agree (4).

Table 41

Course Activities Leading to a Higher Sense of Community

Class Activities	<u>Student Post-survey</u>		<u>Faculty Post-survey</u>	
	n	Score	n	score
Course Feedback from Faculty	203	3.22	41	3.46
Course Announcements	261	3.15	47	3.26
E-mail between Faculty and Students	240	3.13	48	3.35
Class Introductions/Ice Breakers	245	3.11	42	3.43
Graded Discussion Board Forums	242	3.05	45	3.31

Discussion boards and e-mail have been associated with student persistence, student success, and student satisfaction (Liu et al., 2007; Tello, 2002). Ice breakers at the start of a class may help students get engaged more quickly with one another and feel more comfortable (Anderson, 2004). Course activities may lead to a higher sense of community but to what extent? What if course activities do not create community in the student's eyes? Research addressing the student view of activities that increase their engagement and commitment to learning would dovetail with the operationalization of the term community. Again, it is possible that the choice of activities may differ based on age, gender, and ethnicity, so a diverse sample of students is necessary. Another point to consider is the type and purpose behind interactions. Perhaps, interactions that are not course-based may impact one's sense of community in a more positive way than interactions forced through the course. Exploring student-student, faculty-student, and student-content interactions as to type and purpose could even further expand our understanding of community. Additional research should be conducted to determine which online course activities most benefit student success and how often they should be implemented. Too much interactive work required of students may become burdensome but too few interactive requirements may cause feelings of isolation (Mandernach et al., 2006). Research to find the right instructional online balance will hopefully lead to increased course and program persistence.

Defining interaction. Less than 50% of students in this study indicated that they wanted to develop a sense of community; however, a correlation existed, although small, between students' sense of community and course grades. Liu et al. (2007) also found that students did not want to join online communities and participate in group activities, but they too, discovered that despite students' lack of desire to associate with a learning community, it correlated to

course engagement, learning, and satisfaction. Perhaps, there are semantic differences that need to be better defined to identify what is expected for a sense of community to exist. Students may think of community and group activities as partnering with other classmates who may not participate at the same level as expected. It may be that associating with the faculty member and a certain number of students within the course (and not all of the classmates) lead to a manageable and satisfactory level of community engagement. More specific questions may be asked of students at the end of their online courses to determine their engagement with the faculty member and other students in the course. This may then help faculty members develop those activities to help students maintain a sense of community. Tinto (1975) articulated that students with developed relationships at the institution are more likely to remain enrolled.

Replication of this study. The current study explored community in a limited number of classes, finding some slight differences between students by course. Expanding this study to include more class sections would allow for a stronger analysis by class. It is possible that the need for community may differ from one course to another, requiring different activities. It would be valuable to also explore community in online health science programs as well as vocational technical programs to understand the full scope of the importance of sense of community within all academic programs. Because the sense of community declined over the semester in this current study, integrating baseline student interviews and focus groups at the beginning, middle, and end of the semester would help us to better understand exactly how community progresses throughout the semester. Interviewing students in multiple online courses to determine what instructor attributes lead to a higher sense of community and the ways in which a sense of community during the semester can be better fostered would be beneficial. Tinto (2004) identified student success factors (regardless of learning modality), and they

included engaging students with other students, faculty, and staff, as well as faculty providing consistent feedback to students. What, if anything, was missing from their classes that resulted in a decline of students' perceptions of their sense of community from pre-survey to post-survey? Are there factors in community perceptions that are beyond faculty control – conflict between students, for example? Students in their mid to upper 20's had a significant decline in their sense of community from beginning of the semester to the end of term. Are there differences between age groups with expectations for an online course? Do certain course disciplines provide faculty more opportunities for developing community?

Timely feedback. It is evident from this research and the literature that timely feedback is imperative to a successful online course (Bocci et al., 2004; Carr, 2000; Dahl, 2004; Gahungu et al., 2006; Mandernach et al., 2006; Vesely et al., 2007), but what exactly constitutes timely feedback? A better understanding of the student as well as the faculty definition of timely feedback, connected to the various methods of feedback is paramount to increasing course persistence. VCC and Paloff and Pratt (2007) institute a 48 hour feedback time for electronic communication, and Paloff and Pratt tell students coursework can be expected within a week of submission or communication will occur explaining when the response can be expected. Do students have unreasonable expectations for when submissions should be returned with constructive feedback? Hearing from faculty and students on what is acceptable and developing communication lines to explain the process may help reduce unnecessary anxiety and increase the sense of community.

Faculty perspective. The faculty voice is also important when exploring community as many of the suggestions to enhance community require additional training along with course development time. After teaching online for the first time, Osbourne et al. (2009) articulated that

faculty develop a stronger sense of student learning and feel more positively about the experience than first anticipated. Administrators need to understand the impact of distance learning classes on faculty time and productivity, and one way of doing so is to use a case study approach. Following one or more faculty members through professional development training, online course development, and online course instruction would allow the faculty voice to be heard. A chronicle of the faculty member's experiences, as well as focus group discussions with students completing the class, may provide pertinent information to faculty as they develop online courses. It may also may have a positive impact on online student engagement, retention, persistence, and overall success.

Desire to learn or easiest path. Do students truly want to learn material taught within online courses, or are they seeking what they perceive to be the easiest path to attain a higher education? Are some online students not willing to engage in a community setting and fully participate in the course? Over 90% of students in this study garnered an A, B, or C in their respective courses; however, could the sense of community have been lower because students did not participate in it and just worked to meet the minimum expectations to achieve a C or higher? Research has demonstrated that students have entered the online arena because they assumed it would be easier (Osbourne et al., 2009). More research to determine students' reasons for taking online courses and what they anticipate gaining from the experience may assist administrators and instructors as they develop online programs and courses. VCCS reports indicate that student grades in face-to-face courses are often better than in the equivalent online classes (VCCS, 2010b). An analysis of students' sense of community within these same courses could help researchers learn why grades are not as high in the online sections.

Orientation sessions. Orientation sessions can help students learn that real work is involved when completing an online class. Students believing online education is essentially an independent study are often unprepared to work in groups and collaborate with fellow students within the online environment (Paloff & Pratt, 2005). Most college students have previously endured a 12 year academic career moving from elementary to middle to high school. Although more online instruction is being offered in the high schools and continuing to expand each year (Means et al., 2009), most current community college students have significantly more face-to-face instructional experience than online experience. VCC offers an orientation session for online students both in face-to-face and online formats, but it is not mandatory. Interviewing students after their first online course to determine if it did or did not meet expectations may be advantageous to help modify training to assure student success. Reviewing results based on whether or not students attended training sessions would also be noteworthy.

VCC's online student orientation training includes information related to classes often having established deadlines and that learning outcomes and course demands are generally as strenuous as in a face-to-face course. However, the importance of community and being accountable for their learning is not evident. An initial review for colleges would be to determine if students are more successful after completing an orientation session. Another interesting study would be to compare orientation sessions of different schools to determine if a correlation exists between student success and the orientation. Having a focus group of students to discuss what they learned in an orientation session and how they applied it to the course would be advantageous to distance learning staff and faculty. Do some orientations include sample discussion board postings, which provide students a template to generate their initial postings?

Conclusion

The goal of this study was to examine student and faculty perceptions of online students' sense of community at two distinct points of an academic semester. Results revealed that a statistically significant decline in sense of community occurred for students between week 3 and week 14 of the academic term. Fewer statistically significant results existed between faculty perceptions at the same two time periods, and even fewer significant findings resulted when comparing students to faculty at the two points of the semester. A positive, although small, correlation existed between students' overall sense of community and their final course grades. The statistical power was low overall for many of the demographical statistical tests (Cohen, 1988); however, the data provides a baseline for faculty to learn about students' perceptions of community compared to their own and to assess and analyze the results.

Faculty members are willing to modify online courses based on assessment and feedback (Dolloph, 2007), and students in this study perceived a significant decline from early in the semester to the end of term in areas related directly to instruction and/or learning. They included:

- I feel that I am encouraged to ask questions.
- I feel that I receive timely feedback.
- I feel that this course results in only modest learning. (reverse scored)
- I feel that other students do not help me learn. (reverse scored)
- I feel that I am given ample opportunities to learn.
- I feel that this course does not promote a desire to learn. (reverse scored)

This information cannot be generalized to all online faculty and courses throughout the country, VCCS, or even VCC; however, faculty who think everything is going smoothly in their online courses may not be aware that students, for example, do not feel encouraged to ask questions. Liu et al. (2007) articulated that faculty have admitted needing assistance with

developing a sense of community in online courses and understanding students' perceptions compared to their own may give them pertinent feedback to improve online instruction. Measuring students' perception helps identify what is most and least important to students (Herbert, 2006), helping faculty better understand student needs. In the face-to-face setting faculty have more direct communication with students helping them monitor student engagement and progress through the course. In the online environment, instructors need to receive other forms of feedback to learn how students are progressing through the course.

Professional development sessions will be offered during the 2011-2012 academic year with the researcher presenting to the distance learning department staff, distance learning committee, college learning day attendees, and faculty. The goal of the professional development sessions will be to share the research and begin a dialogue with the faculty about the findings. Research has emphasized the importance of community in the online environment, but few researchers have provided concrete data showing if it existed or not. Part of the discussions may help foster training sessions for students and/or faculty that help minimize any gaps between the expectations of students and faculty. What course activities should be included in an online course? What is timely feedback and how is it communicated? Do students want interaction and what is best for their ultimate success? This research may help precipitate these important conversations to help VCC overcome the lower success rate in the online courses compared to the face-to-face equivalent classes (VCCS 2010b).

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Appendix A

Student Pre-survey and Post-survey Surveys

I am completing a dissertation studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at TWO points during the semester. Students completing the entire survey now and again in April will be eligible to win one of eight \$25 gift cards and a grand prize \$200 gift card. Your responses on this survey will not be reported in any manner that would identify you. Your instructor WILL NOT see your results. Please complete this survey by midnight on Sunday, January 30. (Students 17 and under are not permitted to complete the survey). Thank you for your time! - Bill Fiege

The course, section number, and faculty member's name was included here.
(I.E. ENG 111-W01, C. Huff)

Please include your student ID number. If you do not know your student ID number, you may use your full name.

The following questions are intended to provide comparative data. You will not be individually identified by your demographic information in any manner within this study.

What is your age?	18-23	24-30	31-40	41-50	51-60	61+
What is your gender?	Male	Female				
What is your race?	Black/African American	Hispanic	Native American	Other	White	
How many online courses have you completed?	1	1-2	3-4	5-6	7+	
Are you a full-time student or part-time student?	Full-time		Part-time			

Directions: Read each statement carefully and choose the response that comes closest to indicate how you feel about this online course at this time. There are no correct or incorrect responses. Do not spend too much time on any one statement but give the response that seems to best describe how you feel.

Student choices included strongly disagree, disagree, agree, and strongly agree.

- I feel that students in this course care about each other.
- I feel that I am encouraged to ask questions.
- I feel connected to others in this course.
- I feel that it is hard to get help when I have question.

- I do not feel a spirit of community.
- I feel that I receive timely feedback.
- I feel that this course is like a family.
- I feel uneasy exposing gaps in my understanding.
- I feel isolated in the course.
- I feel reluctant to speak openly.
- I trust others in this course.
- I feel that this course results in only modest learning.
- I feel that I can rely on others in this course.
- I feel that other students do not help me learn.
- I feel that members of this course depend on me.
- I feel that I am given ample opportunities to learn.
- I feel uncertain about others in this course.
- I feel that my educational needs are not being met.
- I feel confident that others will support me.
- I feel that this course does not promote desire to learn.

Please respond to the following statements regarding distance education.

Student choices included strongly disagree, disagree, agree, and strongly agree.

- It is important to me that an on-line course feel like a community.
- I feel that my educational needs are not being met unless I participate in group activities with my classmates.
- I prefer to complete assignments on my own rather than in a group.
- It is important to me to feel connected to other students when taking an on-line course.

- It is important to me that my classmates know they can depend on me.
- I feel isolated when I cannot interact with other students in a course.
- Receiving timely feedback is important to me.

Please respond to these statements regarding technology:

Student choices included strongly disagree, disagree, agree, and strongly agree.

- I enjoy doing activities online.
- I would work harder if I could get online more often.
- I feel comfortable working with technology.
- Using technology is very frustrating.
- I believe that the more often teachers use technology, the more I will enjoy my courses.

The next questions focus on your experience and access to technology.

Do you have regular access to the internet? Choose all that apply.

- ☐ Yes, in my home.
- ☐ Yes, at my office.
- ☐ Yes, at the college.
- ☐ Yes, from the local library.
- ☐ Yes, from a friend or neighbor.
- ☐ Yes, from a local business with WiFi
- ☐ No, I do not have regular access to the internet.

- Which of the following best describes your internet experience?

- ☐ no internet experience
- ☐ little internet experience
- ☐ intermediate internet experience
- ☐ advanced internet experience

- How do you access the internet? Check all that apply.

- ☐ Personal Laptop Computer
- ☐ Personal Desktop Computer
- ☐ College Computer
- ☐ Dial-up/Modem
- ☐ Cable, DSL, WiFi, Ethernet
- ☐ iPad
- ☐ Cell Phone

What operating system do you currently use?

- ☐ Windows 2000
- ☐ Windows XP
- ☐ Vista
- ☐ Macintosh OS X
- ☐ Unix
- ☐ I have no idea

Other (please specify) _____

- What browser are you currently using to access this survey?

- ☐ Netscape
- ☐ Internet Explorer
- ☐ Mozilla
- ☐ Safari
- ☐ Firefox

Other (please specify)

- Which of the following internet sites have you visited/used within the last 6 months?
Check all that apply.

- ☐ Search engines (i.e., Google, Yahoo, Ask,)
- ☐ GoogleEarth
- ☐ Social networking sites (i.e., MySpace, Facebook, Classmates.com)
- ☐ Blogs
- ☐ Wiki
- ☐ Skype
- ☐ None of the above

Other (please specify)

Which of the following Multimedia Sharing sites have you used within the last 6 months? Check all that apply.

- ☐ YouTube / Google Video
- ☐ Flickr
- ☐ Odeo
- ☐ iTunes
- ☐ iTunesU
- ☐ none of the above

Other (please specify)

- Which of the following virtual worlds have you visited/used within the last 6 months?
Check all that apply.

- ☐ Second Life
- ☐ Gaia
- ☐ There, Inc
- ☐ Virtual U
- ☐ I don't visit virtual worlds

Other (please specify) _____

- Which of the following media players have you used within the past 6 months? Check all that apply.

- ☐ iPOD/MP3 player
- ☐ DVD player
- ☐ CD player
- ☐ none of the above
- ☐ I don't use media players.

Other (please specify) _____

- Do you wish to be included in the gift card drawing for completing the entire sense of community survey? (Must complete full survey in January and April to be eligible.)
Chance to win up to \$200 gift card for completing entire survey.

- ☐ yes
- ☐ no

name and college e-mail address _____

The following question was only asked on the student post-survey survey. Did the following course activities lead to a higher sense of community in this online course? If an activity was not associated with your course, please choose NA for not applicable.

Student choices included strongly disagree, disagree, agree, and strongly agree

- Graded Discussion Board Forums
- Non-Graded Discussion Board Forums
- Class Introductions/Ice Breakers
- E-mail Student/Student

- E-mail Faculty/Student
- Course Announcements
- Chat Sessions Student/Student
- Chat Sessions Faculty/Student
- Facebook Student/Student
- Facebook Faculty/Student
- Group Projects
- In-Person Meeting Student/Student
- In-Person Meeting Faculty/Student
- Phone Conversation Student/Student
- Phone Conversation Faculty/Student
- Text Messaging Student/Student
- Text Messaging Faculty/Student
- Course Feedback from Faculty

Appendix B

Faculty Pre-survey and Post-survey Surveys

To fulfill requirements for my Ph.D in Community College Leadership from Old Dominion University, I am completing a dissertation studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at TWO points during the semester. Your responses on this survey will not be reported in any way to identify you. Please respond by midnight on Sunday, January 30. Thank you for your time! - Bill Fiege

The course, section number, and faculty member's name was included here.
(I.E. ENG 111-W01, C. Huff)

The following questions are intended to provide comparative data. You will not be individually identified by your demographic information in any manner within this study.

What is your age?	18-23	24-30	31-40	41-50	51-60	61+
What is your gender?	Male	Female				
What is your race?	Black/African American	Hispanic	Native American	Other	White	
How many online courses have you completed?	1	1-2	3-4	5-6	7+	
Are you a full-time student or part-time student?		Full-time		Part-time		

Directions: Read each statement carefully and choose the response that comes closest to indicate how you feel about this online course at this time. There are no correct or incorrect responses. Do not spend too much time on any one statement but give the response that seems to best describe how you feel.

Faculty choices included strongly disagree, disagree, agree, and strongly agree.

- Students in this course care about each other.
- Students feel encouraged to ask questions.
- Students feel connected to others in this course.
- Students feel that it is hard to get help when they have a question.
- Students do not feel a spirit of community.
- Students feel that they receive timely feedback.
- Students feel that this course is like a family.

- Students feel uneasy exposing gaps in their understanding.
- Students feel isolated in the course.
- Students feel reluctant to speak openly.
- Students trust others in this course.
- Students feel that this course results in only modest learning.
- Students feel that they can rely on others in this course.
- Students feel that other students do not help me learn.
- Students feel that members of this course depend on them.
- Students feel that they are given ample opportunities to learn.
- Students feel uncertain about others in this course.
- Students feel that their educational needs are not being met.
- Students feel confident that others will support them.
- Students feel that this course does not promote a desire to learn.

Please respond to the following statements regarding distance education.

Student choices included strongly disagree, disagree, agree, and strongly agree.

- It is important to students that an on-line course feel like a community.
- Students feel that their educational needs are not being met unless they participate in group activities with their classmates.
- Students prefer to complete assignments on their own rather than in a group.
- It is important to students to feel connected to other students when taking an on-line course.
- It is important to students that their classmates know they can depend on them.
- Students feel isolated when they cannot interact with other students in a course.

- Receiving timely feedback is important to students.

The next questions focus on the course activities you will use in your online course.

Which course activities will you use in this online course? Check all that apply.

- Graded Discussion Board Forums
- Non-Graded Discussion Board Forums
- Class Introductions/Ice Breakers
- E-mail Student/Student
- E-mail Faculty/Student
- Course Announcements
- Chat Sessions Student/Student
- Chat Sessions Faculty/Student
- Facebook Student/Student
- Facebook Faculty/Student
- Group Projects
- In-Person Meeting Student/Student
- In-Person Meeting Faculty/Student
- Phone Conversation Student/Student
- Phone Conversation Faculty/Student
- Text Messaging Student/Student
- Text Messaging Faculty/Student
- Course Feedback from Faculty

The following question was only asked on the student post-survey survey. Did the following course activities lead to a higher sense of community in this online course? If an activity was not associated with your course, please choose NA for not applicable.

Student choices included strongly disagree, disagree, agree, and strongly agree

- Graded Discussion Board Forums
- Non-Graded Discussion Board Forums
- Class Introductions/Ice Breakers
- E-mail Student/Student
- E-mail Faculty/Student
- Course Announcements
- Chat Sessions Student/Student
- Chat Sessions Faculty/Student
- Facebook Student/Student
- Facebook Faculty/Student
- Group Projects
- In-Person Meeting Student/Student
- In-Person Meeting Faculty/Student
- Phone Conversation Student/Student
- Phone Conversation Faculty/Student
- Text Messaging Student/Student
- Text Messaging Faculty/Student
- Course Feedback from Faculty

Appendix C
Permission from President

December 7, 2010

Dr. David A. Sam
President, [Removed School Name] Community College
2130 [Removed School Name] Highway
Locust Grove, VA 22508

Dear Dr. Sam:

As you are aware, I am completing the dissertation requirements for my Ph.D in Community College Leadership from Old Dominion University. I am studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at two points during a semester and if there are correlations between students' sense of community to their final course grades and course activities. I am formally requesting your permission to survey all students and faculty associated with online courses within our arts and sciences division at the College on two occasions during the Spring 2011 semester. Before the research begins, I will have permission from the ODU Human Subjects Review Committee. The following methodology briefly explains the research.

On January 17, a SurveyMonkey link to the survey will be placed in the Blackboard shell for all online arts and sciences courses and remain active until January 30. A survey will be sent to all faculty of these courses via their College e-mail account on the same day. Students and faculty members will be asked to complete their respective surveys for each online course with which they are associated. The survey should take between five and seven minutes to complete. On April 10, the same students and faculty members will be asked to complete it for a second time by April 24. It is VITAL to this research that they complete the survey both times.

I will ask for their ID numbers (or full name if they do not remember it) because I must identify those completing the survey both times. At no time, however, will faculty or fellow students have access to individualized responses. In addition, results will not be reported in any way or at any time that could identify students, faculty, or specific classes. Students completing the surveys completely on both occasions will be placed in a drawing to receive one of eight \$25 gas gift cards and one \$200 gift card. This research will help the College's online program through future professional development sessions.

If you would like more information pertaining to this research, you may contact me at 540-891-3040 or wfiege@germanna.edu. Thank you for your assistance, and I look forward to hearing your response.

Sincerely,

William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

December 15, 2010

Mr. William Fiege
9339 Birch Cliff Drive
Fredericksburg, VA 22407

Dear Mr. Fiege,

I am in receipt of your letter dated December 7, 2010 requesting permission to survey all students and faculty associated with online courses within the arts and sciences division of the college.

I am granting you this permission and have noted you will also obtain permission from the ODU Human Subjects Review Committee.

I wish you every success with your research and successful completion of your doctorate.

Sincerely,

A handwritten signature in black ink, appearing to read "David A. Sam", with a stylized flourish at the end.

David A. Sam
President

Appendix D
First E-mail to Students

Dear Online Student,

My name is Bill Fiege, and I am Dean of Professional and Technical Studies at [Removed School Name]. To fulfill requirements for my Ph.D in Community College Leadership from Old Dominion University, I am completing a dissertation studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at two points during the semester. I also want to examine any correlation between students' sense of community to final course grades and course activities. On January 17, a link to a survey will be placed in the Blackboard shell for each online course used in this study, and it will remain active until January 30. Please complete the survey for each online course in which you receive it. It will take approximately five to seven minutes to complete. On April 10, the same survey will be posted again in your Blackboard shell for completion a second time. It is VITAL to this research that you complete the survey both times.

I will ask for your student ID number (or full name if you do not remember it) because I must identify students completing the survey both times. At no time, however, will faculty or fellow students have access to your individualized responses. In addition, results will not be reported in any way or at any time that could identify students, faculty, or specific classes. Finally, students completing the surveys completely on both occasions will be placed in a drawing to receive one of eight \$25 gas gift cards and one \$200 gift card. This research will help the College's online program, as well as help me fulfill my degree requirements.

If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[removed school name\].edu](mailto:wfiege@[removed school name].edu). I thank you for your assistance and time!

Sincerely,

William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix E
January Blackboard Announcement Linking Sense of Community Survey

I am completing a dissertation studying student perceptions of community and faculty perceptions of students' sense of community in online courses at two points during the semester. Please complete the survey found at the link below by January 30. You will also see a link in the Blackboard shells of any additional online courses being used in this study. It is imperative to this research that you complete the survey for each online course. The survey will take approximately five to seven minutes to complete.

At no time will faculty or fellow students have access to your individualized responses. In addition, results will not be reported in any way or at any time that could identify students, faculty, or specific classes. Students completing the surveys completely on both occasions (now and in April) will be placed in a drawing to receive one of eight \$25 gas gift cards and one \$200 gift card. This research will help the College's online program, as well as help me fulfill my degree requirements. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or wfiege@[removed school name].edu. I thank you for your assistance and time!

William Fiege , Dean of Professional and Technical Studies

COMPLETE SURVEY NOW! [Link Here](#)

Appendix F
April E-mail to Students

Dear Students,

Thank you to all of you who completed the sense of community survey in January. As a reminder, I am studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. It is VITAL to this research that if you completed the survey in January that you respond once again by April 24. A link to the survey will be placed in the Blackboard shell for each online course in which you are enrolled on April 10. Again, the response should take approximately five to seven minutes to complete.

I will ask for your student ID number (or full name if you do not remember it) because I must identify students completing the survey both times. At no time will faculty or fellow students have access to your individualized responses. In addition, results will not be reported in any way that could identify students, faculty, or specific classes.

Lastly, students completing the surveys on both occasions will be placed in a drawing to receive one of eight \$25 gas gift cards or one \$200 gift card. This research will help the College's online program, as well as help me fulfill my degree requirements. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[Removed School Name\].edu](mailto:wfiege@[Removed School Name].edu).

I thank you for your time!

Sincerely,

William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix G
April Blackboard Announcement to Students Linking Classroom Community Scale

Dear Online Student,

Thank you to all of you who completed the sense of community survey in January. As a reminder, I am studying student perceptions of community and faculty perceptions of students' sense of community in online courses at two points during the semester. Please complete the survey found at the link below by April 24. You will also see a link in the Blackboard shells of any additional online courses being used in this study. It is imperative to this research that you complete the survey for each online course. The survey will take approximately five to seven minutes to complete.

At no time will faculty or fellow students have access to your individualized responses. In addition, results will not be reported in any way or at any time that could identify students, faculty, or specific classes. Students completing the surveys completely on both occasions (January and Now) will be placed in a drawing to receive one of eight \$25 gas gift cards and one \$200 gift card. This research will help the College's online program, as well as help me fulfill my degree requirements. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[removedschoolname\].edu](mailto:wfiege@[removedschoolname].edu). I thank you for your assistance and time!

William Fiege , Dean of Professional and Technical Studies

COMPLETE SURVEY NOW! [Link Here](#)

Appendix H
January Reminder E-mail to Students

Dear Online Students,

Thank you to all of you who have already completed the sense of community survey. This is a reminder that only one week remains (due January 30) to complete it. The survey is accessible within the announcements section on the course Blackboard shell. Students completing the surveys on both occasions (by January 30 and again in April) will be placed in a drawing to receive one of eight (8) \$25 gas gift cards and one \$200 gift card. This research will help the College's online program, as well as help me fulfill my Ph.D requirements. For my research, I am studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. It is VITAL to this research that you complete the survey on both occasions. Again, the response should take approximately five to seven minutes to complete.

I ask for your student ID number (or full name if you do not remember it) because I must identify students completing the survey both times. At no time will faculty or fellow students have access to your individualized responses. In addition, results will not be reported in any way or at any time that could identify students, faculty, or specific classes. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[removed school name\].edu](mailto:wfiege@[removed school name].edu). I thank you for your time!

Sincerely,
William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix I
April Reminder E-mail to Students

Dear Online Students,

Thank you to all of you who have already completed the sense of community survey. This is a reminder that only one week remains (due by 11:59 pm on April 24) to complete the survey for each online course in which you are enrolled. The survey is accessible under announcements on the course Blackboard shell. Students completing the surveys on both occasions (January and now) will be placed in a drawing to receive one of eight (8) \$25 gas gift cards and one \$200 gift card. This research will help the College's online program, as well as help me fulfill my Ph.D requirements from Old Dominion University. For my research, I am studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. It is VITAL to this research that if you completed the survey in January that you complete it again now. Again, the response should take approximately five to seven minutes to complete.

I ask for your student ID number (or full name if you do not remember it) because I must identify students completing the survey both times. At no time will faculty or fellow students have access to your individualized responses. In addition, results will not be reported in any way or at any time that could identify students, faculty, or specific classes. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[Removed School Name\].edu](mailto:wfiege@[Removed School Name].edu).

I thank you for your time!

Sincerely,

William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix J
First E-mail to Faculty

Dear Faculty,

To fulfill requirements for my Ph.D in Community College Leadership from Old Dominion University, I am completing a dissertation studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. On January 17, for each online course that you teach, a link to a survey will be sent to you via your Germanna e-mail and remain active until January 30. I will post the student surveys directly in the announcements section of your course Blackboard shell for the students to complete during the same time period. If you prefer an alternative distribution method for the student surveys, please contact me by Friday, January 14. The survey will take approximately five to seven minutes to complete. On April 10, the same survey will be sent to you again via e-mail for you to complete a second time. It is VITAL to this research that you complete the survey both times.

I will ask for your faculty ID number because I must identify faculty completing the survey both times. At no time, however, will supervisors, other faculty, or students have access to your individualized responses. In addition, results will not be reported in any way that could identify students, faculty, or specific classes.

This research will help the College's online program, as well as help me fulfill my degree requirements. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[removed school name\].edu](mailto:wfiege@[removed school name].edu). I thank you for your assistance and time! - Bill

Sincerely,

William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix K
E-mail to Faculty with Link to Classroom Community Scale

Dear Faculty,

To fulfill requirements for my Ph.D in Community College Leadership from Old Dominion University, I am completing a dissertation studying student perceptions of community and faculty perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. Please complete the survey linked at the bottom of this email by January 30. A separate e-mail is being sent to you for each online course that you teach with the SurveyMonkey link specifically identifying each one. The survey will take approximately five to seven minutes to complete. On April 10, the same survey will be sent to you again via e-mail for you to complete a second time. It is VITAL to this research that you complete the survey both times.

I will ask for your faculty ID number because I must identify faculty completing the survey both times. At no time, however, will supervisors, other faculty, or students have access to your individualized responses. In addition, results will not be reported in any way that could identify students, faculty, or specific classes.

This research will help the College's online program, as well as help me fulfill my degree requirements. The student version is currently available to them on your course Blackboard shell, and I ask that you please encourage them to complete it. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[remove school name\].edu](mailto:wfiege@[remove school name].edu). I thank you for your assistance and time! - Bill

COMPLETE SURVEY NOW!
(Survey Link)

Sincerely,

William Fiege
[Removed School Name] Community College

Appendix L
April E-mail to Faculty

Dear Faculty,

Thank you to all of you who completed the sense of community survey in January. As a reminder, I am studying student perceptions of community and faculty perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. It is VITAL to this research that if you completed the survey in January that you respond once again by April 24. A link to the survey will be sent to your [Removed School Name] e-mail account on April 10. Please complete the survey for each online course you are teaching. Again, the response should take approximately five to seven minutes to complete.

I will ask for your faculty ID number because I must identify faculty completing the survey both times. At no time will your supervisor, faculty, or students have access to your individualized responses. In addition, results will not be reported in any way that could identify students, faculty, or specific classes. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[Removed School Name\].edu](mailto:wfiege@[Removed School Name].edu).

I thank you for your time!

Sincerely,

William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix M
April E-mail to Faculty with Link to Classroom Community Scale

Dear Faculty,

Thank you to all of you who completed the sense of community survey in January. As a reminder, I am studying student perceptions of community and faculty perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. It is VITAL to this research that if you completed the survey in January that you respond once again. Please complete the survey for each online course that you teach by April 24. The survey will take approximately five to seven minutes to complete.

I will ask for your faculty ID number because I must identify faculty completing the survey both times. At no time will your supervisor, faculty, or students have access to your individualized responses. In addition, results will not be reported in any way that could identify students, faculty, or specific classes. The student version is available to them on the course Blackboard shell, and I ask that you please encourage them to complete it. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[Removed School Name\].edu](mailto:wfiege@[Removed School Name].edu). I thank you for your time!

COMPLETE SURVEY NOW!

[Link here](#)

Sincerely,

William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix N
January Reminder E-mail to Faculty

Dear Online Faculty,

This is a reminder that only one week remains (due January 30) to complete the survey for each online course that you teach. This research will help the College's online program, as well as help me fulfill my Ph.D requirements from Old Dominion University. For my research, I am studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. It is VITAL to this research that you complete the survey on both occasions (until January 30 and again in April). Again, the response should take approximately five to seven minutes to complete.

I ask for your ID number because I must identify faculty completing the survey both times. At no time will your supervisor, faculty, or students have access to your individualized responses. In addition, results will not be reported in any way that could identify students, faculty, or specific classes. Please encourage your students to complete the survey by January 30 as well. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[remove school name\].edu](mailto:wfiege@[remove school name].edu).

I thank you for your time! - Bill

COMPLETE SURVEY NOW!

[Link Here](#)

Sincerely,

William Fiege

[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix O
April Reminder E-mail to Faculty

Dear Online Faculty,

Thank you to all of you who have already completed the survey. This is a reminder that only one week remains to complete the survey for each online course that you teach. This research will help the College's online program, as well as help me fulfill my Ph.D requirements from Old Dominion University. For my research, I am studying students' perceptions of community and faculty members' perceptions of students' sense of community in online courses at two points during the semester. I am also examining if there is a correlation between students' sense of community to final course grades and course activities. It is VITAL to this research that if you completed the survey in January that you complete it again by April 24. Please also encourage your students to complete their survey posted in the Blackboard shell. Again, the response should take approximately five to seven minutes to complete.

I ask for your ID number because I must identify faculty completing the survey both times. At no time will your supervisor, faculty, or students have access to your individualized responses. In addition, results will not be reported in any way that could identify students, faculty, or specific classes. If you would like more information pertaining to this research, you may contact me at 540-891-3040 or [wfiege@\[Removed School Name\].edu](mailto:wfiege@[Removed School Name].edu).

I thank you for your time!

COMPLETE SURVEY NOW!

[Link here](#)

Sincerely,

William Fiege
[Removed School Name] Community College
Dean of Professional and Technical Studies

Appendix P
Students' Perceptions of Their Sense of Community- Dependent t-tests

Measurement	Comparison	Statistical Test
Each Online Course	Students' perceptions of their sense of community at week 3 compared to students' perceptions of their sense of community at week 14.	Dependent T-test
All Online Courses	Students' perceptions of their sense of community at week 3 compared to students' perceptions of their sense of community at week 14.	Dependent T-Test
All Online Courses	Differentiating students by gender, students' perceptions of their sense of community at week 3 compared to students' perceptions of their sense of community at week 14.	Dependent T-Test
All Online Courses	Differentiating students by part-time (11 or fewer credits) or full-time status (12 or more credits), students' perceptions of their sense of community at week 3 compared to students' perceptions of their sense of community at week 14.	Dependent T-Test

Appendix Q
Students' Perceptions of Their Sense of Community- Dependent t-test and ANOVA

Measurement	Comparison	Statistical Test
All Online Courses	Differentiating students by age (18- 23, 24-30, 31-40, 41-50, 51-60, 61 and above), students' perceptions of their sense of community at week 3 compared to students' perceptions of their sense of community at week 14.	Dependent T-test and ANOVA
By Online Subject Area	Examining biology, English composition, English literature, history, humanities, math, philosophy, psychology, religion, sociology, and speech, students' perceptions of their sense of community at week 3 compared to students' perceptions of their sense of community at week 14	Dependent T-test and ANOVA
All Online Courses	Differentiating students by race (white, black, Asian, Hispanic, Native American, other), students' perceptions of their sense of community at week 3 compared to students' perceptions of their sense of community at week 14.	Dependent T-test and ANOVA
All Online Courses	Differentiating students by number of completed online courses (0, 1-2, 3-4, 5-6, 7+), students' perceptions of their sense of community at week 3 compared to students' perceptions of their sense of community at week 14.	Dependent T-test and ANOVA

Appendix R
Faculty Members' Perceptions of Students' Sense of Community- Dependent t-tests

Measurement	Comparison	Statistical Test
Each Online Course	Faculty members' perceptions of students' sense of community at week 3 compared to faculty members' perception of students' sense of community at week 14.	Mean Differences
All Online Courses	Faculty members' perceptions of students' sense of community at week 3 compared to faculty members' perceptions of students' sense of community at week 14.	Dependent T-Test
All Online Courses	Differentiating faculty by gender, faculty members' perceptions of students' sense of community at week 3 compared to faculty members' perceptions of students' sense of community at week 14.	Dependent T-Test
All Online Courses	Differentiating faculty by part-time status and full-time teaching status, faculty members perceptions of students' sense of community at week 3 compared to faculty members' perceptions of students' sense of community at week 14.	Dependent T-Test

Appendix S

Faculty Members' Perceptions of Students' Sense of Community- Dependent T-test and ANOVA

Measurement	Comparison	Statistical Test
All Online Courses	Differentiating faculty by age (18-23, 24-30, 31-40, 41-50, 51-60, 61 and above), faculty members' perceptions of students' sense of community at week 3 compared to faculty members' perceptions of students' sense of community at week 14.	Dependent T-test and ANOVA
By Online Subject Area	Examining biology, English composition, English literature, history, humanities, math, philosophy, psychology, religion, sociology, and speech, faculty members' perceptions of students' sense of community at week 3 compared to faculty members' perceptions of students' sense of community at week 14.	Dependent T-test and ANOVA
All Online Courses	Differentiating faculty by race, faculty members' perception of students' sense of community at week 3 compared to faculty members' perceptions of students' sense of community at week 14.	Dependent T-test and ANOVA
All Online Courses	Differentiating faculty by number of online courses taught (0, 1-2, 3-4, 5-6, 7+), faculty members' perceptions of students' sense of community at week 3 compared to faculty members' perceptions of students' sense of community at week 14.	Dependent T-test and ANOVA

Appendix T
Differences between Student and Faculty Perceptions- Independent T-tests

Measurement	Comparison	Statistical Test
Each Online Course	Difference between student perceptions of community and faculty perceptions of students' sense of community from week 3 to week 14.	Mean Differences
All Online Courses	Difference between student perceptions of community and faculty perceptions of students' sense of community from week 3 to week 14.	Independent T-Test
All Online Courses	Differentiating by gender, difference between student perceptions of community and faculty perceptions of students' sense of community from week 3 to week 14.	Independent T-Test
All Online Courses	Differentiating by part-time and full-time status, difference between student perceptions of community and faculty perceptions of students' sense of community from week 3 to week 14.	Independent T-Test

Appendix U
Differences between Student and Faculty Perceptions Continued- Independent T-Test

Measurement	Comparison	Statistical Test
All Online Courses	Differentiating by age, difference between student perceptions of community and faculty perceptions of students' sense of community from week 3 to week 14.	Independent T-Test
By Online Subject Area	Examining biology, English composition, English literature, history, humanities, math, philosophy, psychology, religion, sociology, and speech, difference between student perceptions of community and faculty perceptions of students' sense of community from week 3 to week 14.	Independent T-Test
All Online Courses	Differentiating by race, difference between student perceptions of community and faculty perceptions of students' sense of community from week 3 to week 14.	Independent T-Test
All Online Courses	Differentiating by number of online courses completed/taught, difference between student perceptions of community and faculty perceptions of students' sense of community from week 3 to week 14.	Independent T-Test

Appendix V
Correlation between Students' Sense of Community and Final Student Course Grades

Measurement	Comparison	Statistical Test
Each Online Course	Compare student perceptions of community and student grades.	Correlation coefficient
All Online Courses	Compare student perceptions of community and student grades.	Correlation coefficient
All Online Courses	Differentiating by gender, compare student perceptions of community and student grades.	Correlation coefficient
All Online Courses	Differentiating by part-time and full-time status, compare student perceptions of community and student grades.	Correlation coefficient
All Online Courses	Differentiating students by age, compare student perceptions of community and student grades.	Correlation coefficient
By Online Subject Area	Examining biology, English composition, English literature, history, humanities, math, philosophy, psychology, religion, sociology, and speech, compare student perceptions of community and student grades.	Correlation coefficient
All Online Courses	Differentiating by race, compare student perceptions of community and student grades.	Correlation coefficient
All Online Courses	Differentiating by number of online courses completed, compare student perceptions of community and student grades.	Correlation coefficient

VITA

WILLIAM C. FIEGE

10000 Germanna Point Drive
Fredericksburg, VA 22408
540-891-3040

EDUCATION:

Old Dominion University, Norfolk, Virginia, July 2011

Ph.D.: Community College Leadership

Bloomsburg University, Bloomsburg, Pennsylvania, August 1996

M.A.: Speech Communication

Longwood University, Farmville, Virginia, December 1994

B.S.: Major: Political Science Minor: Speech

PROFESSIONAL HISTORY:

[Removed School Name] Community College, Fredericksburg, Virginia, 2003-Present

- Academic Dean 2004-Present
- Instructor of Speech Communication, 2003-2004

Longwood University, Farmville, Virginia, 1996-2003

- Assistant Athletic Director for Development, 2002-2003
- Assistant Director of Alumni Relations, 1999-2002
- Director of Forensics, 1996-2000
- Instructor of Speech, 1996-1999

HONORS:

- VCCS Technology in Education Award (1st Place) in 2004 and (2nd Place) in 2009.
- Volunteer Service Award
- Student Organization Advisor of the Year Award
- Outstanding Young American
- Commended for Longwood Spirit
- Who's Who
- Mortar Board
- Phi Kappa Phi
- Golden Key

PRESENTATIONS & WORKSHOPS:

Conducted over 75 presentations, workshops, and/or keynote addresses at local and regional conferences. Audiences have varied in size from five to five hundred. Topics have included: “Communication Skills for Business Leaders,” “Humor in the Workplace,” “Communication in the Workplace,” “Network: Get to Know People,” “Customer Service,” and “Communicating with the Public.”

COMMUNITY INVOLVEMENT:

Involved with the following groups during my professional career:

- Vice Chair-Academics for VCCS Council of Deans and Directors
- Member of VCCS Course Review Committee
- Finance Chair and Member of Board of Directors for Smart Beginnings Rappahannock Area
- Member of STEM Steering Committee, group associated with Fredericksburg Area Chamber of Commerce
- Current Member and Past Chair of Workforce NOW, group affiliated with Fredericksburg Chamber of Commerce
- Board of Directors for Orange County Career and Technical Education Advisory Council
- Member of Inaugural Leadership Fredericksburg Class
- Membership Chair, Leadership Fredericksburg Alumni Association
- Past Director of Youth Baseball League in Farmville, Virginia
- Past Head Coach Youth Baseball
- Past Chairman of the Board of Governors for Epsilon Lambda Chapter of Phi Kappa Tau Fraternity
- Past Advisor to the Geist Chapter of Mortar Board
- Past Advisor to the Longwood Ambassadors
- Past Advisor to Princeps (secret society at Longwood representing leadership)
- Past Leadership Farmville Moderator
- Past Chefs’ Food Festival Master of Ceremonies