Part I: General Description of Online Course Taught (PSY 369)

To better address the needs of our students, the department of psychology recognized the importance of developing online courses that would help with retention and degree completion of students at a distance. To this end, I developed two online courses that are regularly offered: Development Across the Lifespan (PSY 369) and Child Psychology (PSY 235). Each of these courses fills to capacity (30 maximum students) every time it is offered. These classes are taken by both majors and nonmajors, with PSY 369 particularly in demand by nonmajors because it is often a prerequisite for physical therapy and nursing programs. This is also the class that I teach more often; I have taught it for six of the past eight regular semesters (since Fall, 2007) and also the past three summers. Thus, PSY 369 is the course that I will submit for consideration for the DECCO Award for Innovative Online Teaching.

Because I was a new teacher when I began teaching PSY 369, it was quite rudimentary in its initial structure. However, as I gained more experience as a teacher/scholar, I honed my online teaching skills, and this course has been through many revisions (both major and minor) in terms of technologies used and instructional practices employed. As part of my scholarly teaching, I have been tracking the evolution of this course, and evidence of this evolution is presented in the supplementary materials. Below are the general course description and course learning objectives.

Course Description:
During this course, we explore topics related to biological, social, and cognitive development through the lifespan. The topics will be addressed in a chronological order, beginning with prenatal development and ending with topics related to death and dying. This course is an internet-only course with 100% of the material being delivered online.

Course Learning Objectives:
Through this course, students are expected to:
1. Display an understanding (via online exams) of a person’s development through the lifespan, divided into four main sub-topics:
   - Prenatal Development, Infancy and Early Childhood
   - School-Age Children and Adolescents
   - Young and Middle Adulthood
   - Late Adulthood

2. Discuss (via online discussions) theoretical issues of development brought forth in the textbook and online lectures.

These learning objectives align with: 1) IPFW’s goals to foster learning and create knowledge; 2) COAS’s mission to equip students to think critically and communicate effectively; and 3) the Psychology Department’s goals of teaching students to think critically and to use the scientific approach to understanding behavior (among others). These learning objectives will be addressed through various course activities and assignments including: online lectures, online discussions, interactive games, and exams.
Part II: Descriptions of the Teaching Approaches Utilized

My approach to teaching online mirrors my approach to teaching in the face-to-face classroom. In each of these classrooms, I strive to help students build connections—connections to the material, to me, and to their fellow students, as well as connections that help them apply their classroom experiences to their own lives. This connection-building is an important part of my teaching philosophy (see brief Teaching Philosophy Statement in attachment), which is based on individuals learning from one another within a social context.

To this end, I have developed innovative online instructional strategies that help students build connections to the material, me, and their fellow classmates. Three exemplars of course materials that embody my teaching strategies are provided in this portfolio:

1. Organizational Strategies: If a course is not organized well, this can be a huge stumbling block for students’ connection to the course material, their instructor, and their fellow students. Therefore, one of my primary “innovations” over my seven years of online teaching was to streamline my course so that the organization is logical and straightforward. This was especially important for Spring, 2012, when students first had access to the new course management system (Blackboard Learn).

According to the Quality Matters™ design standards 2011-12, online students should be “introduced to the purpose and structure of the course,” it should be clear “how to get started and where to find various course components,” and navigation through the course should be “logical, consistent, and efficient.” I have accomplished this through a variety of organizational strategies including: a syllabus quiz, an introductory video, announcements, the use of adaptive release, and how-to (Microsoft Expression) videos on course navigation.

2. Multimedia: The use of various types of multimedia allows the learner to interact with the material on several different levels and engage in more active learning (a criterion of the Quality Matters™ design standards 2011-12). According to the QM rubric...
standards of quality online course design, students should be able to “readily access the technologies required in the course,” and these technologies should be “current” and “support course learning objectives.” Therefore, I have made continuous efforts to infuse my course with use current, readily accessible multimedia to support my course learning objectives either directly or indirectly. Examples of the multimedia I use currently are Mediasite Lectures, Microsoft Expression Voice-over screen captures, Supplementary Video Clips displayed in playlists from the IPFW Media Vault, and interactive exercises (flash cards, quizzes, crossword puzzles, etc.).

I use these multimedia materials to help students make connections to the materials and help them make connections to me (their instructor). For example, the Mediasite program, which includes video of me teaching to an empty classroom, was chosen specifically so that students would have an opportunity to see me while I explain concepts or draw on the ELMO to better explain concepts. I feel that this type of nonverbal communication is very important to learning, and it might also help students feel a sense of instructor presence. Thus, I am committed to the use of multimedia in my courses to promote active learning (connection with the material) and instructor presence (connections with me).

3. Activities to promote student learning and engagement: One of the distinct features of my online course is my commitment to providing learning opportunities that not only help the students engage with the academic material, but also strengthen their connections with me and their fellow students. My primary example of this type of activity is my use of scaffolding on the discussion board.

Each semester, I post 16 discussion thread topics each that highlight some of the important content. I ask that students provide at least 6 discussion thread posts each semester that are “thoughtful and relevant.” Although they are only required to post 6 comments, most members of the class post many more than what is required. In a typical semester, about one third of the class posts 13 or more messages, which is twice as many posts as is required. In my most recent semesters of teaching this course, I have been
providing individualized feedback (a scaffolding method) to discussion board posts in an effort to help students engage with the material in a more meaningful way.

Some of these online teaching practices are innovative (e.g., use of Microsoft Expression and individualized scaffolding for discussion boards); others are less so (e.g., discussion boards and Mediasite lectures). However, an overarching innovation in my online teaching relates to my commitment to scholarly teaching in the online environment. Although I have not provided specific exemplars or reflections on this work, my commitment to measuring the outcomes of the changes I implement in my online courses should be evident throughout this portfolio. Additionally, I have provided three of my pedagogical papers in the supplementary files (one book chapter related to the use of course management systems, and two refereed research articles related to students' learning and sense of community in online courses). These are just samples of my pedagogical work related to online course design. I am also working on a research paper comparing multimedia lecture formats (data is presently being analyzed) as well as an invited book chapter on the evaluation of online courses (already in the final stage of revisions). These scholarship of teaching and learning (SoTL) materials provide evidence of my commitment to scholarly teaching in the online environment.

In sum, if selected for the DECCO Award for Innovative Online Teaching, one point that I will emphasize in my presentation to the campus community is my use of scholarly teaching practices in the online learning environment. I am reflective about my practices, I measure the effectiveness of these practices, and I use these measures to make changes in my course design. In a time when we as instructors are asked to produce “multiple measures of teaching effectiveness,” the examples I can provide during this presentation may be especially helpful for those hoping to provide evidence of scholarly teaching in their online courses.
Organization

Descriptions & Examples

Measures of Effectiveness
After numerous semesters when I would occasionally forget to release an exam, grades, or send announcements about upcoming assessments or assignments, I started to use the Adaptive Release tool. This tool has transformed my teaching in two ways:

1. It has forced me to be thoughtful about my course calendar, well before the course has even begun, and
2. It has allowed me to free up time during the semester when I would have previously been working on organization to communicate more directly with students.

I use adaptive release for almost every single course item (e.g., course content, assessments, assignments, grades, videos, announcements). I prepare my adaptive release criteria before the semester begins so that my content, assignments, assessments, etc. unfold in synchrony with the course calendar. It is an invaluable tool for organization in an online course. An example of this (showing the adaptive release enabled for the course units) is shown at left.
One of my favorite organizational tools is the announcement tool. I create many of my announcements before the semester begins, timing them to come before exams and at various points in the semester (for motivation). I also use them to communicate pertinent of-the-moment information (e.g., Blackboard outages or changes).

Because I am not seeing these students on a day to day basis, I try to create enthusiasm by infusing humor into the announcements. However, as can be seen by the sample (see left insert), there is also much useful content.

In a typical semester, I will send about 10-12 announcements to the entire class. This decision was based on the fact that I would like to stay connected with the students and alert them of coming deadlines, but I also do not want to overwhelm them with information.

Exam 1 coming up next week-- Feb 8-12

Passed on: Wednesday, February 1, 2012

Hi All.

Grab some popcorn and M&Ms and start watching those online lectures (found in the chapter folders)! The first exam is over FIVE chapters, and it is (in my opinion) the toughest test because of how much information it covers. So, please make sure you have watched the online lectures.

Also, if you are working towards completing your discussion board posts, you can complete 5 for this unit-- this would mean that you would only have to respond to one more discussion board topic for the rest of the semester. Exciting stuff! ;)

Good luck.

Dr. D
One of my most useful organizational innovations that has helped student learning (in this case, students’ learning about the structure of the course), was to develop a syllabus quiz. Over the course of several semesters, there were some recurrent themes in the questions and feedback I received from students:

1. Exams: Some students expressed discontent that the exam questions were administered one at a time, and that they could not review their answers online.
2. Discussions: Students’ ratings of the usefulness of the discussion threads were not as high as my other online course ratings (e.g., 3.5 on 5.0 scale).

Therefore, I revised the syllabus so that these features of the course were more thoroughly explained. I also created a syllabus quiz that had to be completed at the end of the first week (see sample screenshot at left) that focused on these topics and several other important course topics (e.g., what I use the Discussion Board for—content knowledge and fostering interactions).
Sample Questions from Syllabus Quiz

How many discussion board posts do I need to make this semester?

Answer

a. At least 15: 1 for each chapter
b. At least 6: 1 post for each of 6 different questions (out of 15) posed by Dr. Drouin on the discussion board
c. None: Discussion boards posts are not for points

Which one of these statements most accurately describes the format of the online exams?

Answer

a. Each exam has 50 multiple choice questions to be completed in 50 minutes. The questions will be displayed one at a time, and you will not be able to revisit questions.
b. Each exam has 50 essay questions to be completed in 50 hours. The questions will be hard and will have no true answer.
c. Each exam has 50 multiple choice questions to be completed in 50 minutes. You will be able to see all of the questions at once and go back and forth to questions at will. This will give you plenty of time to complete the questions you know and then look back through your notes and book to answer the ones you are not sure about.
d. The exams will be like the exams I had in my previous online class, which I really liked.

I've finished taking my exam. Now, I want to see what I've missed. How can I do this?

Answer

a. My answers and the correct answers will be displayed immediately.
b. My answers and the correct answers will be displayed after everyone has taken the exam.
c. I will email Dr. Drouin to arrange a time to come onto campus or talk (via telephone) to find out what I've missed.
I create a “start here” introductory video each semester so that students have information from the beginning of the course about how to start the course. The video format gives me an opportunity to speak directly to the students, which is helpful for establishing an instructor presence in the course.

As you will see in the video, I tell students how to get started, by alerting them of the first three course tasks:

1. Read and print out the syllabus, and take the short syllabus quiz (found under “assessments”)
2. Print out the lecture outlines
3. Watch the first online lecture

I also tell them that when they have finished these tasks, they should go to the discussion board to indicate they have done so.

By having them complete these starting tasks, I am checking to be sure they can find, open, and print all of the required class materials. And by having them note the completion of these tasks on the discussion board, I am also checking that they can use the main interactive tool for this course. Additionally, the discussion board gives me a date and time stamp for when students actually begin the course.
Blackboard Home Page Featuring Introductory Video
Student Replies to Introductory Video: Discussion Board Posts with Time Stamps (Spring, 2012)
As Spring, 2012 was the first semester that most students had access to Blackboard Learn, I felt that they might need some introduction to the new environment. Blackboard provides a number of tutorial videos, but I thought that a personal video, that draws attention the specific features of my online course, would be helpful to students.

Using Microsoft Expression™, a free voice-over screen capture video tool, I recorded two videos that were meant to demonstrate: (1) how to navigate the course (click on video to left to see sample) and (2) how to post to the discussion board. Although I had made every effort to be sure that the course was well organized, I also felt that some students might feel more comfortable with a little introduction to the Blackboard Learn environment.

This voice-over screen capture tool has been very useful to me for clarifying navigation of programs and web pages. I regularly use Microsoft Expression in conjunction with Jing (another free screen capture tool), to enrich my students’ experiences in both face-to-face and online courses. Then, I upload these videos to playlists in the IPFW Media Library (http://stream.ipfw.edu/), which syncs with Blackboard.
Blackboard Help Page Featuring How-to Videos

If you do not have Acrobat Reader, you can download it free from here!

Blackboard help
Follow this link to an external site that will help you with Blackboard issues.

How-to Videos
Measure of Effectiveness for Course Organization: Student Survey Feedback

As an indirect measure of the effectiveness of my organizational strategies, students in the Spring, 2012 section of PSY 369 were asked to complete a survey that measured “their impressions of the course so far.” The table below shows the students’ appraisals of the effectiveness of my organizational strategies.

Effectiveness of General and Specific Course Organization Strategies as Measured by Student Survey Feedback from PSY 369 in Spring, 2012

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear how to start course</td>
<td>23 (92%)</td>
<td>2 (8%)</td>
<td></td>
</tr>
<tr>
<td>Course is simple to navigate</td>
<td>22 (88%)</td>
<td>1 (4%)</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Instructor communicates clear deadlines</td>
<td>25 (100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course organization is logical and straightforward</td>
<td>24 (96%)</td>
<td>1 (4%)</td>
<td></td>
</tr>
<tr>
<td>The syllabus quiz was helpful to emphasize points that I might not have known about this course.</td>
<td>21 (84%)</td>
<td>4 (16%)</td>
<td></td>
</tr>
<tr>
<td>I understand how discussion board is used</td>
<td>21 (84%)</td>
<td>2 (8%)</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>It is clear how exams are administered and how I might review my exam.</td>
<td>19 (76%)</td>
<td>5 (20%)</td>
<td>1 (4%)</td>
</tr>
</tbody>
</table>

Note. N = 25. Response rate was 81%.

Overall, students’ appraisals of my course organizational strategies were very positive. And one very encouraging point was that 100% of students agreed that I communicated clear deadlines, which is one of the organizational strategies that I really spent a lot of time and thought developing. This student feedback provides strong support for my organizational efforts.
Activity to Promote Student Learning and Engagement

Descriptions & Examples

Measures of Effectiveness
ACTIVITIES TO PROMOTE STUDENT LEARNING AND ENGAGEMENT

Use of Scaffolding on the Discussion Board

In my abbreviated Teaching Philosophy Statement (see attachment), I have clearly defined my teaching goals. They include the use of collaborative learning, critical thinking exercises, and personal reflection and application to promote student learning. The discussion boards in my PSY 369 Online course were designed to address all of these teaching goals. The discussion board questions I pose are content-oriented and sometimes controversial (e.g., What do you think about the LAD (language acquisition device)? Do you think it exists? If so, where would it be?). They are also designed to promote discussion and engagement and be a vehicle for learning class concepts.

To guide students through a learning process related to these discussion board topics and also to engage the students on a more personal level, I use individualized scaffolding for discussion board posts (the main interactive tool employed in my online course). Scaffolding, a social learning concept introduced by Lev Vygotsky, has long been used as a method of teaching someone to do something that is slightly beyond their capabilities. Roy Pea (2004), in his much-cited commentary on scaffolding (see attachment), delineated scaffolding into two dimensions—a social dimension and a technological dimension. In other words, according to Pea (2004), there may be two beneficial aspects of scaffolding:

1. The student actually learning the skill, and
2. The social responsiveness of the teacher towards the learner, which may promote student engagement.

Therefore, in my PSY 369 course, I use scaffolding to do what Pea (2004) suggests it can—to promote student learning and engagement. Although the use of discussion boards with Course Management Systems is fairly common, my choice of topics combined with my method of feedback is a pedagogical approach that I think is quite novel and effective.
Use of Scaffolding in Discussion Boards to Promote Student Learning and Engagement

How Exactly Do I Scaffold?
My scaffolding in my online course takes the form of providing individualized feedback on the students’ first few discussion thread posts. After their first post, I email the student individually, with my appraisal of the post. Each post is worth 10 points (out of a total of 460 in the course), and because I do not have a strict grading rubric, I provide only general feedback. The feedback I provide can be broken down into four main categories:

Example 1: The perfect post
I just wanted to let you know that your first post on the nature/nurture debate is exactly what I’m looking for. You referenced the relevant literature, stated your opinion on the topic, and gave a real-life example to put your opinion in context. Excellent job!

Example 2: A post where they have applied the topic to a real-life situation, but they haven’t connected their idea to the literature
I just wanted to let you know that your first post on the nature/nurture debate is definitely on the right track! You stated your opinion on the topic and gave a real-life example to put your opinion in context. You might also want to reference the relevant part of the book or lecture in future posts to help ground your opinion in the literature.

Example 3: A post where they have connected their idea to the literature, but have not applied the topic to a real-life situation
I just wanted to let you know that your first post on the nature/nurture debate is definitely on the right track! You referenced the relevant literature and gave your opinion on the topic. In future, you might also want to give a real-life example to put your opinion in context.

Example 4: A post where they have neither connected their idea to the literature nor applied it to a real-life situation
I just wanted to let you know that your first post on the nature/nurture debate needs a little bit more for you to get full credit. To improve, you may want to give a real-life example to put your opinion in context. You might also want to reference the relevant part of the book or lecture to help ground your opinion in the literature.
Measure of Effectiveness: Student Surveys of Engagement

Overall Student Engagement for Discussion Boards
A simple tally of the number of posts each student has each semester revealed that the discussion boards do promote discussion and engagement. For example, although students must respond to only six of these each semester, in a typical semester, approximately one third of the class responds to 13+ posts. Additionally, students respond favorably to my personal emails (e.g., they thank me for contacting them about their class progress). Most notably, my end-of-semester evaluations show that students express content about their ability to communicate with me, and to a lesser extent, with their fellow students.

Below is a summary of the ratings from a recent semester of PSY 369 Online, responding to the statement: I had the opportunity to communicate with my instructor (1 = Strongly Disagree to 5 = Strongly Agree).

Not surprisingly, likely due to these emails and other efforts on my part to connect with students (e.g., frequent announcements, video lectures featuring me teaching, introductory videos, etc.) students feel that they have an opportunity to communicate with me.
Meanwhile, below is a summary of the ratings from the same semester of PSY 369 Online, responding to the statement: I had the opportunity to communicate with my classmates (1 = Strongly Disagree to 5 = Strongly Agree).

![Pie chart showing distribution of responses.]

Although fewer students felt that they had the opportunity to communicate with classmates, only a very small proportion (11%) disagreed that they had this opportunity. Because discussion boards are the only tool utilized to promote collaborative learning in this course, students’ feelings of connection or ability to communicate with fellow students can be entirely attributed to these discussions.
Measure of Effectiveness: Quantitative Changes in the Quality of Student Discussion Board Posts

In order to determine whether individualized scaffolding after the student’s first discussion board post had an effect on the completeness of their subsequent posts (i.e., whether they were grounded in literature and applied to real-life scenarios), I assigned point values to their first post (before scaffolding) and next post (after scaffolding) according to this general rubric:

- 0 points—Student does not state opinion on topic or provide any relevant information or examples that pertain to thread topic.
- 5 points—Student only states opinion on topic. This opinion, while clearly stated and relevant to the thread, is not supported by course content (either book or lectures). Nor does the student provide any real-life example that could help put the opinion in context.
- 7 points—Student states opinion on topic (clear and relevant to thread) and also provides either course content OR a real-life example that helps to put the opinion in context.
- 10 points—Student states opinion on topic (clear and relevant to thread) and provides and course content AND a real-life example that helps to put the opinion in context.

For the first discussion board post before scaffolding two people had a perfect score (10 points), 19 people gave either an example or cited the book or lecture (7 points) and two people stated their opinion only.

Nine of the individuals who were provided scaffolding feedback on discussion post #1 completed discussion post #4 after receiving this feedback. For this post, eight of them received perfect scores (10 points), and only one person cited only the lecture but gave no real-life example (7 points). This is a significant shift in the number of people who provided all of the information that I think is important to understand these class concepts and suggests that my scaffolding of these discussion board posts had an impact on student learning.
Measure of Effectiveness: Qualitative Changes in Discussion Board Posts

My scaffolding of these discussion board posts does appear to be a vehicle for learning. One of the best examples of this is a sample of student work.

The first discussion board forum of this semester (Spring, 2012) was:
“Give me 12 healthy infants… ” What do you think about John Watson’s quote? Where do you stand on the nature/nurture debate?

Student A posted:
“In reading the quote, I found myself agreeing with it. I am a believer in the concept that one's environment will shape and mold an individual into the person that they become. But this does not mean that I think that nature has no role in the creation of an individual. I see nature as the beginning of a person. But, I see nurture as a way for a person to respond to their natural inclinations. To me, this is really the belief in soft-determinism which says that we certain things are determined for us (certain tendencies or personality traits), but our environment plays a part in how we choose to respond to our natural inclinations.”

Because there was neither a real-life application of the topic nor a reference to the literature, I responded with a variation of Example 4:
“Hi Student A.
I just wanted to let you know that your first post on the nature/nurture debate needs a little bit more for you to get full credit. To improve, you may want to give a real-life example to put your opinion in context. You might also want to reference the relevant part of the book or lecture to help ground your opinion in the literature.”

A subsequent discussion board forum in which this same student participated was:
“What do you think about Chomsky's suggestion of a LAD? If it exists, where in the brain do you think it could be found?”

Student A posted:
“The possibility of the Language Acquisition Device (LAD) seems to be a reasonable theory for the topic of language development. In the lecture, Chromsky’s Nativist Perspective was defined as being a biological program in humans. This seems plausible since there are certain things that appear to be innate in humans. For example, a baby knowing to suckle its mother’s breast is innate. It seems that the infant’s suckling is activated when it is given input. Why can’t language development also be that way? Language could easily be something that is ready to be processed after it is activated by verbal input.
If LAD does exists, I would say that according to the lecture, it would be in the left hemisphere of the brain where language is connected.”

Through scaffolding (via an individualized email), this student’s posts went from a general appraisal of a theory to a specific definition, appraisal, and real-life application for a complex topic. This is just one example of the evolution I see in these discussion board posts with just a little bit of scaffolding.
MULTIMEDIA

Descriptions & Examples

Measures of Effectiveness
Since I began teaching online in 2006, I have used Mediasite as my lecture capture tool. I have experimented with programs that used voice-over Powerpoint technology (e.g., Adobe Presenter, Impatica), and I also piloted Tegrity in Fall, 2011. However, I feel strongly that Mediasite (and Echo 360, which I have not yet tried) help students feel connected to me and the content more than the other tools I have tried (click on image for sample).

I have 15 lectures in my PSY 369 online course, which vary in length from about 30 minutes to 1 hour. Students can stop and start Mediasite as they wish; they do not have to view lectures in one sitting. They can also click on particular slides if they would like to review that portion of the lecture only. This streaming media tool is wonderfully rich, and it allows me to speak to the students directly, as I might do if I were in a face-to-face lecture.
According to the 2011-13 Quality Matters™ standards for quality online course design (http://www.qmprogram.org/files/QM_Standards_2011-2013.pdf; see also appendix of this document), online courses should include opportunities for students “to measure their own learning progress.”

To that end, every course I teach includes interactive learning exercises (e.g., flashcards, online quizzes, crossword puzzles, matching games) for every chapter. In some cases, I develop these quizzes on my own with the Hot Potatoes software (http://hotpot.uvic.ca/); in other cases, I use the instructor’s resources provided by the publisher to provide students with a range of interactive exercises so that they can measure their learning progress.
Tutorial Quiz Example (3 of 35 questions shown)

1. Sara believes that memory processes develop the same way in all children. Sara is most likely to support a ___ position regarding human development.
   - a. universal
   - b. nurture
   - c. discontinuous
   - d. non-normative

2. Because Dr. Jefferson is interested in researching how people of different ages are affected by events, it would be most accurate to say that Dr. Jefferson is most interested in studying ___ forces.
   - a. psychological
   - b. biological
   - c. life-cycle
   - d. sociocultural

3. When would Erikson say is the stage in life where the biggest challenge is committing to another in a loving relationship?
   - a. adolescence
   - b. middle adulthood
   - c. late life
   - d. young adulthood
Crossword Puzzle Example

Across
2. as applied to tests, the extent to which the test measures what it is supposed to measure
4. subset of a population
6. consequence that increases the likelihood that a behavior will be repeated in the future
8. theory proposed by Erik Erikson in which personality development results from the interaction of maturation and societal demands
10. organized set of ideas that explains development

Down
1. all internal perceptual, cognitive, emotional, and personality factors that affect development
3. (observational learning) learning that happens by watching those around us
5. view that human development cannot be separated from the environmental contexts in which development occurs
7. investigation looking at relations between variables as they exist naturally in the world

Crossword Compiler Software © 2001 x-word.com
Blackboard Chapter 1 Home Page Featuring Interactive Exercises

**Chapter 1 Lecture**
Enabled: Statistics Tracking

**Discussion: Give me 12 healthy infants...**
Enabled: Statistics Tracking
Discussion board post; please reply to MY thread. What do you think about John Watson's quote? Where do you stand on the nature/nurture debate?

**Interactive exercises**
Enabled: Statistics Tracking
Included are the study tools for Chapter 1. These are for your benefit only; you do not need to send me the scores from them or tell me that you have completed them.

**Supplementary Video-- Watch Chapter 8, Video 1**
Enabled: Statistics Tracking
I have always used videos to help explain class concepts. This is especially useful to demonstrate experiments that have been done with children in my development classes. When I first started teaching, I went to CELT to have my videos digitized. Then, using Adobe Premiere Pro video editing software, I created short, useful video clips that I inserted in my Powerpoint shows (click on image to see sample video).

For my online classes, I do not show these supplementary videos as part of the Powerpoint presentation. Instead, so that students can see a better quality video at their desk tops, I make these videos available as supplementary videos. Since Fall, 2011, I have used the IPFW Streaming Media library (http://stream.ipfw.edu/) to store these video clips. I then arrange them into a playlist (see next page for a screen shot of this) and this playlist is added to each Chapter where supplementary videos are relevant.

The incredibly useful aspect of using the IPFW Streaming Media library is that the links I embed in Blackboard are automatically updated when I make changes to my playlist. This has been incredibly useful when changing or adding videos.
Blackboard Chapter 3 Home Page Featuring Supplementary Videos

Interactive exercises
Enabled. Statistics Tracking
Included are the study tools for Chapter 3. These are for your benefit only; you do not need to send me the scores from them or tell me that you have completed them.

Supplementary Video(s): Watch AFTER lecture!
Enabled. Statistics Tracking

Chapter 2, Video 1: 06:41
Chapter 2: 07:11
Chapter 3, Video 1: 02:45
Chapter 3, Video 2: 02:13
Chapter 4: 02:36
I create a “start here” introductory video each semester so that students have information from the beginning of the course about how to start the course. The video format gives me an opportunity to speak directly to the students, which is helpful for establishing an instructor presence in the course.

As you will see in the video, I tell students how to get started, by alerting them of the first three course tasks:
1. Read and print out the syllabus, and take the short syllabus quiz (found under “assessments”)
2. Print out the lecture outlines
3. Watch the first online lecture
I also tell them that when they have finished these tasks, they should go to the discussion board to indicate they have done so.

By having them complete these starting tasks, I am checking to be sure they can find, open, and print all of the required class materials. And by having them note the completion of these tasks on the discussion board, I am also checking that they can use the main interactive tool for this course. Additionally, the discussion board gives me a date and time stamp for when students actually begin the course.
Welcome to PSY 369 Online!

Watch video below, then click on "Content" in menu bar to access course

Start here! Introduction to PSY 369 Online
Student Replies to Introductory Video: Discussion Board Posts with Time Stamps (Spring, 2012)
As Spring, 2012 was the first semester that most students had access to Blackboard Learn, I felt that they might need some introduction to the new environment. Blackboard provides a number of tutorial videos, but I thought that a personal video, that draws attention the specific features of my online course, would be helpful to students.

Using Microsoft Expression™, a free voice-over screen capture video tool, I recorded two videos that were meant to demonstrate: (1) how to navigate the course (click on video to left to see sample) and (2) how to post to the discussion board. Although I had made every effort to be sure that the course was well organized, I also felt that some students might feel more comfortable with a little introduction to the Blackboard Learn environment.

This voice-over screen capture tool has been very useful to me for clarifying navigation of programs and web pages. I regularly use Microsoft Expression in conjunction with Jing (another free screen capture tool), to enrich my students’ experiences in both face-to-face and online courses. Then, I upload these videos to playlists in the IPFW Media Library (http://stream.ipfw.edu/), which syncs with Blackboard.
Blackboard Help Page Featuring How-to Videos

If you do not have Acrobat Reader, you can download it free from here!

**Blackboard help**
Follow this link to an external site that will help you with Blackboard issues.

**How-to Videos**

- How to navigate this course
- How to post to a...
Measures of Effectiveness for Course Multimedia: Item Usage Statistics

One way to measure the effectiveness of my use of multimedia in the course is to examine the number of times that students access the multimedia course materials (an informal indicator of students’ perceptions of their education value). When I designed my online course, I enabled the tracking tool on all of the individual items in the course that could be tracked, so that I could record overall as well as individual student usage of the course items. Blackboard Learn provides a plethora of statistics about course item usage, including the times of day and days of week that when these items are accessed. However, the most relevant statistic for my overall evaluation of students’ use of the specific course items is to examine the number of times the item was accessed over a specific time period. Below, I provide graphical depictions of the number of times students accessed a variety of multimedia learning items:

1. Mediasite Lectures
2. Interactive Exercises
3. Streaming Supplementary Videos (IPFW Streaming Media Library)
4. Introductory Video (Microsoft Expression)**
5. How-to Videos (Microsoft Expression)**

In all cases, representative samples are presented.

** Please note that the Introductory Video and the How-to-Navigate Tutorial are also featured in the “Organization” aspect of this portfolio. They are listed here to illustrate my use of Microsoft Expression.
1. Mediasite Lectures

Because all students have already taken the exam over Chapters 1 & 2, the Chapter 1 & 2 video lecture statistics are presented in Figures 1 & 2. These statistics are representative of the general patterns I observed with regard to the number of times students accessed the course lectures from the start of the course until the end of Exam 1.

Figure 1. Content Usage Statistics for the Mediasite Lecture for Chapter 1

Figure 2. Content Usage Statistics for the Mediasite Lecture for Chapter 2

As is evident by the access logs, students accessed the lectures for Chapters 1 & 2 fairly consistently during the weeks leading up to the first exam (with more access during the beginning and towards the end of the unit). This pattern of results is encouraging because it suggests:
1. That the sequence I encourage (with my selective release) is being followed and students start viewing the online lectures early during the course, and

2. Students are reviewing the online lectures more as the exam nears, which suggests that they feel these lectures have educational value.
2. Interactive Exercises

The most popular interactive exercise tool is the tutorial quiz. Because students had all taken the unit exam for Chapter 1 and 2, the access logs for these tutorial quizzes are shown in Figures 3 & 4. Again, these statistics are representative of the general patterns I observed with regard to the number of times students accessed the course lectures from the start of the course until the end of Exam 1.

Figure 3. Content Usage Statistics for the Tutorial Quiz for Chapter 1

![Content Usage Statistics for Chapter 1](image1)

Figure 4. Content Usage Statistics for the Tutorial Quiz for Chapter 2

![Content Usage Statistics for Chapter 2](image2)

As demonstrated by the access logs, students do use the tutorial quizzes. For the first chapter, more access attempts were recorded (quiz was accessed 60 times), which suggests that many students tried the tutorial quizzes near the beginning of the course, likely to see if they were a useful study tool for them. For Chapter 2, fewer access attempts were
recorded (quiz was accessed 30 times), which suggests that those who liked the tutorial quiz were using it as a means to test themselves over course material for the unit exam. These patterns of use are expected as students monitor their learning strategies and find the learning tools that work best for them within a given course. Additionally, these patterns give support for the use of interactive exercises in this online course, as some students are clearly using these interactive exercises as learning tools.
3. Supplementary Videos

The access log for the supplementary video files for Chapters 1–5 (shown together because they are accessed via a playlist) are shown in Figure 5.

Figure 5. Content Usage Statistics for Supplementary Videos

Students were provided with an embedded playlist for supplementary videos for Chapters 2–5. As such, I expected little viewing on the videos in the first week (when Chapter 1 was covered), but more viewing of the videos in the subsequent weeks. This is the pattern of results that I found. Overall, the streaming videos were accessed 77 times during the first unit, with peaks near the middle of the unit (when there were a few videos to watch) and near the end of the unit, when students were studying for the unit exam. Again, this pattern of results suggests:

1. That the sequence I encourage (with my selective release) is being followed for viewing the supplementary videos, and
2. Students are reviewing the supplementary videos more as the exam nears, which suggests that they feel these lectures have educational value.
4. Introductory Video

All of the information for getting started is contained in the Introductory Video, which is featured in the Content Gallery on the Home Page. Unfortunately, no item usage statistics are available for this tool. However, because all of the students were asked to watch this video before answering the first Discussion Board post on getting started in the course, these time stamps (Discussion Board #1) can be used as proxy measures of when the students viewed this video (see Figure 6).

Figure 6. Content Usage Statistics for Introductory Video (as measured by completion of tasks mentioned in Introductory Video)

Because the introductory video is designed to give students an introduction to me, the course structure, and information for getting started, it is ideal that students access this video at the beginning of the course. As shown in the Figure, my proxy measure indicated that most students accessed the introductory video right at the beginning of the course.
5. How-to Videos

Two Microsoft Expression videos were created to help students navigate the new Blackboard Learn environment: (1) a video that showed how to navigate the course and (2) a video that showed how to post to the Discussion Board. Usage statistics for the access of these videos are displayed in Figure 7.

Figure 7. Content Usage Statistics for How-to Videos

Overall, these videos were accessed 17 times, and they were accessed more towards the beginning of the course, which was the ideal time to access these how-to videos. These videos appear to be meeting a need for some students, so they will remain a feature of the course.
Measures of Effectiveness for Course Multimedia: Student Survey Feedback

As an indirect measure of the effectiveness of the course features, students in the Spring, 2012 section of PSY 369 were asked to complete a survey that measured “their impressions of the course so far.” Figure 1 shows the students’ impressions of the usefulness of a sample of the multimedia tools (Mediasite Lectures, Interactive Exercises, Supplementary Videos, and Introductory Video). [Note: Because few people accessed the how-to videos, students were not asked to provide comments about this multimedia.]

Figure 1. Effectiveness of Multimedia Used in Course as Measured by Student Survey Feedback

<table>
<thead>
<tr>
<th>Item</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Mediasite lectures are helpful for teaching course content.</td>
<td>21 (84%)</td>
<td>4 (16%)</td>
<td>--</td>
</tr>
<tr>
<td>The interactive exercises are helpful for reinforcing the concepts covered in the book and lecture.</td>
<td>12 (48%)</td>
<td>11 (44%)</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>The supplementary videos (in playlists) are organized sufficiently and easy to find.**</td>
<td>24 (96%)</td>
<td>1(4%)</td>
<td>--</td>
</tr>
<tr>
<td>Introductory video was helpful for understanding how to start.**</td>
<td>20 (80%)</td>
<td>4 (16%)</td>
<td>1 (4%)</td>
</tr>
</tbody>
</table>

Note. N = 25. Response rate was 81%. **These two survey items are applicable to both the multimedia and the organization aspect of the course.

Overall, students responded very favorably to the multimedia used. They felt that these items either aided their understanding of the course (organization or content) or that they were easy to find and use. The one exception to this was the interactive exercises. Although students overall did not have negative appraisals of the interactive exercises, many of them were undecided about their benefit. This may be because this portion of the class had not made use of the interactive exercises. Because they were deemed “helpful for reinforcing concepts” by approximately half the class, these interactive exercises will remain an available feature in my online course.
THE RELATIONSHIP BETWEEN STUDENTS’ PERCEIVED SENSE OF COMMUNITY AND SATISFACTION, ACHIEVEMENT, AND RETENTION IN AN ONLINE COURSE

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This study evaluated students’ sense of community, satisfaction, achievement, and retention in 3 sections of the same online undergraduate psychology course. Use of asynchronous discussion threads and students’ perceived interaction with fellow students and the instructor were all correlated with students’ perceived sense of community (SOC). When student-student and student-instructor interactions were examined more specifically, the sum of student-student interaction variables was related to SOC, while the sum of student-instructor interaction variables was not. Additionally, although sense of community was related to student satisfaction within the course, it was not related to either course grade or retention in an online course of study. A review of student comments exemplified this and showed that while some students enjoyed, needed, or desired social interaction, some students did not desire sense of community in an online course environment.

OVERVIEW

The question of which interactive methods should be employed within an online class has been a central issue addressed by instructors, researchers, and critics of online courses alike. This issue represents a distinction between pedagogical approaches within face-to-face (FTF) and online environments (Kearsley, 2000; Reeves, Herrington, & Oliver, 2004). In a FTF classroom, instructors are often challenged when planning interactions, constructing the social setting in which students will have the opportunity to discuss, analyze, and exchange information with fellow students and the instructor. Engaging learning experiences are not, after all, always easy to design, develop, and implement. Online instructors face the same challenges, but in the case of the online class, the students are not physically present, which presents additional obstacles (Angeli, Valanides, & Bonk, 2003).
In an online classroom, instructors must begin by building a method of communication within student groups and between students and instructor, and then fashioning the available computer-mediated communications (CMC) in such a way that students are able to participate in the social exchange of information in a virtual environment. The pedagogical importance of creating and maintaining a method of social interaction within an online classroom is driven by two main assumptions: one, that social construction of knowledge, (i.e., understanding of concepts is enhanced by social discourse), is present and essential within learning all environments and two, that social presence (i.e., projection of oneself in a social manner, see Garrison, Anderson, & Archer, 2001) and “sense of community” (i.e., feelings of belongingness to a group) increase student satisfaction and may aid in retention of students in undergraduate courses.

Social Construction of Knowledge in Online Environments

Issues related to the social construction of knowledge have been propounded for decades within the FTF pedagogical framework and are ever-present in both FTF and online pedagogical literature. Not surprisingly, many contemporary theorists have addressed the importance of social interaction from the standpoint of developmental learning theories (e.g., Garrison et al., 2001; Gorsky & Caspi, 2005; Gunawardena, Lowe, & Anderson, 1997; Jiang & Ting, 1999; Kay, 2006; Rovai & Barnum, 2003) and have emphasized interaction as an essential component in education. Social learning theory asserts that learning requires active participation and the exchange of information with others. Consequently, many of the researchers who have supported active participation within online environments cite Vygotsky’s influential work on the importance of social interaction in the learning process. According to Vygotsky (1978), knowledge is constructed within social contexts; learning cannot be separated from the environment within which it occurs; and collaboration within social environments is essential to learning.

Within FTF undergraduate teaching environments, social collaborative learning has been emphasized through the wide distribution of works informing best practices in teaching. For example, in Chickering and Gamson’s (1987) much cited “seven principles of good practice in undergraduate education,” the first three principles comprise communication between student and teacher, collaboration between students, and active learning. All of these principles, in direct line with Vygotsky’s theory, relate to students’ interaction with material in a social context to improve learning. Within CMC research, social learning interaction has also been recommended (e.g., Garrison et al., 2001; Hannafin, 1989). Researchers who have examined social learning theory in online environments have even devised interaction models specific to the online learning experience, subdivided by elements of community (Garrison, Anderson, & Archer, 2000) or type of interaction (e.g., Moore, 1989). For example, Garrison and colleagues’ (2000) “Community of Inquiry” model includes cognitive presence, social presence, and teacher presence as overlapping elements that comprise the educational experience in CMC environments. According to these researchers, cognitive presence, or the ability of students to think critically as a result of community discourse, is fostered through environments that provide social presence and suitable teaching (Garrison et al., 2000, 2001). In a similar vein, Moore (1989) has subdivided the interactions that take place in an active learning environment into learner-content, learner-instructor, and learner-learner interactions. More recently, a learner-interface interaction has been added to Moore’s original categories (Hillman, Willis, & Gunawardena, 1994) for specific application in CMC learning communities. While these two models use different classifications for the interactions that occur in a social learning environment, they
are similar in that they specify means for achieving interactive learning in online environments. More specifically, they both cite the importance of interactions between learners and instructors and interactions between learners and other learners as integral to the development and maintenance of an effective educational experience (see also Palloff & Pratt, 1999).

“Sense of Community” and Student Satisfaction, Retention, and Achievement

When learners are able to interact with their classmates and instructor, it may give rise to a perception that they are part of a community of learners. According to Rovai (2002a), a learning community comprises individuals participating together in joint activities who have a sense of belonging to one another. Further, he contends that sense of community (SOC) can be fostered through interaction with others who have similar interests and goals, and if SOC is not present in either a FTF or online environment, feelings of disconnection may lead to a lower rate of success or retention. Meanwhile, researchers have suggested that when SOC is present within an online environment, it is associated with student satisfaction (Outz, 2006; Philips & Peters, 1999; Rovai, 2002a; Swan, 2002; Woods, 2002).

While SOC has been linked to student satisfaction, student satisfaction, in turn, has been linked to retention (Palloff & Pratt, 1999; Rovai & Wighting, 2005). From the perspective of educational policy and practice, the issue of retention (i.e., retaining students within a course, program of study, or degree) is of primary importance. Educators and policymakers alike are interested in the variables related to student retention and use these data to enact changes in educational policy. In empirical studies, researchers have demonstrated that social interaction within college courses is related to student satisfaction (Gunawardena & Zittle, 1997; Outz, 2006; Phillips & Peters, 1999; Swan, 2002; Woods, 2002); in turn, researchers have demonstrated that student satisfaction is related to retention within the university or course of study (e.g., Aitken, 1982; Thomas, 2000). Thus, it appears the connection between social interaction and retention is likely an indirect one, mediated by student satisfaction within the course or university structure.

Finally, SOC may also be linked indirectly to student learning outcomes. Empirical studies of CMC environments have shown that interactions among participants, such as those which occur within discussion forums, can be related to learning in online communities (Gorsky & Caspi, 2005; Hiltz & Wellman, 1997; Lapointe & Gunawardena, 2004; Swan, et al., 2000; Salmon, 2002). Once again, “interaction among participants” can be defined as both student-student and student-instructor interactions. For example, a recent analysis by Lapointe and Gunawardena (2004) showed that students’ interactions with peers were associated with perceived learning outcomes. Meanwhile, other researchers (e.g., Jiang & Ting, 1999; Richardson & Ting, 1999; Swan et al., 2000) have suggested that student-instructor interaction can increase student learning and achievement in online courses.

These researchers contend that interactions between students and between students and instructors may bolster learning within an online course environment, thereby supporting theories related to the social construction of knowledge.

“Sense of Community” and Student-Student Versus Student-Instructor Interaction

The relationship between student satisfaction and connection with others, or SOC, appears to be related to both student-instructor interaction and student-student interaction. In a study of 1,406 students across an entire university system, Swan (2002) found a significant positive correlation between students’ perceived interaction with instructors and fellow students and their satisfaction within their
online courses. Meanwhile, Woods (2002) found in a single course study that a significant relationship exists between student-instructor interaction and learner satisfaction. Interestingly, in Woods’ study there was not, however, an increase in student satisfaction, learning, or sense of community in response to increased personal e-mails from the instructor. Together, these findings suggest that there may be an ideal amount of social interaction that is desirable within online learning environments (see Rourke, Anderson, Garrison, & Archer, 1999) and/or that there is a lot of individual variability in terms of desire of SOC in online communities. These findings also suggest that both student-student and student-instructor interactions may foster both SOC and student satisfaction in online environments.

**Limitations of Existing Research**

While there is a good amount of recent research related to CMC, SOC, and students’ perceived learning and satisfaction, researchers who have conducted extensive studies on this topic have typically employed a between-class design within an entire university system (e.g., Jiang & Ting, 1999; Lapointe & Gunawardena, 2004; Ouzts, 2006; Swan, 2002). Although this approach is useful in identifying differences between course structures, it does not allow for the analysis of individual student characteristics and perceptions of CMC related to perceived sense of community and student achievement within a single course structure. Because course structures may differ widely even within one university, and individual instructors vary in the way they create, deliver, and facilitate interaction, this may limit researchers’ abilities to make specific recommendations with regard to online pedagogical practice. Nonetheless, based on between-class empirical evidence, researchers have made broad recommendations that student-student and student-instructor interaction be incorporated in online class design (Jiang & Ting, 1999; Lapointe & Gunawardena, 2004; Ouzts, 2006; Swan, 2002). Specific types of interactions employed within the various course settings have not, however, been clearly defined within these large studies; as such, it is impossible to make recommendations on online pedagogy based on specific discourse practices. To address these limitations, within-class designs are necessary in order to examine the effects of CMC generally, and student-student interaction and student-instructor interaction specifically, with relation to satisfaction and achievement.

An additional limitation in existing literature that addresses CMC and/or SOC in an online environment is course design issues. As online courses are still relatively new and many are in their formative stages, some researchers who have attempted to analyze online discourse and/or sense of community have cited student problems, concerns, and complaints with understanding technology and the organization of the courses (e.g., Hara & Kling, 1999; Ouzts, 2006). Thus, problems of student-interface interaction may be presenting a serious methodological limitation and, as suggested by Hara and Kling (1999), these problems may detract from the original line of enquiry. Within the framework of CMC research, students’ difficulties in accessing course materials and understanding what is required of them may affect their perceptions of SOC and the overall effectiveness of the online learning environment considerably.

In fact, Swan and colleagues (2000) insist that community building cannot even begin to take place until students feel comfortable with the online learning environment and technologies. Some of these problems related to course organization have been mentioned, but not controlled for, in previous research. For example, in the recent study by Ouzts (2006), students’ perceptions of sense of community were measured in a sample of 227 students across 48 online courses within one university. Interviews with students conducted after the survey revealed that students who felt a low sense of community also reported “overall dissatisfaction with the course,” a “poor quality of learning,” and simply “not understanding
expectations” (pp. 290-291). These general criticisms imply inherent problems in the course design that may not be related specifically to the interaction between students or between student and instructor. Furthermore, in criticisms that were directed at the instructor specifically, students cited “no feedback on assignments” and “disengaged, unavailable” instructors (p. 291). Because these criticisms may affect a students’ perceived sense of community in an online course, methodological protocol highlights the necessity to analyze the contribution of structured CMC to students’ sense of community within the context of an organized, established course in which the instructor is not perceived as “disengaged.”

In sum, although a good amount of CMC research related to the social construction of knowledge and SOC exists, study design factors and confounding variables limit the generalization of the results to single courses. Therefore, in the interest of generating more specific empirical research on this topic that can inform online pedagogical practice, the present study was devised.

**Research Questions**

Central to the research questions are course design factors that both differentiate the current study from past studies and provide justification for its methods. First, the study employed a within-course rather than between-course design. The study of several sections of the same course allows for analysis of individual student factors and necessarily excludes confounding variables that might be found in between-course designs (e.g., SOC could vary between courses simply from different instructor availability or course content delivery method). Second, the course was well-organized and provided opportunity to communicate with the instructor (as rated by student comments). Most students in all three sections of the course agreed that the course set-up was straightforward (93%) and they were aware of course expectations and approaching deadlines (96%). Moreover, 97% indicated that they felt they had the opportunity to communicate with the instructor. As researchers agree that course delivery and design issues might confound students’ perceptions of SOC or even prevent SOC from developing (e.g., Outz, 2006; Swan et al., 2000), a well-organized course and available instructor are necessary components of any study that examines the types of interactions that contribute to SOC. Finally, the question of whether students feel they need SOC in online courses can only be answered in a qualitative way when students’ comments are not confounded by their ill-opinions of the overall course structure. Again, the present study addressed this issue as 96% of the students indicated average to above average satisfaction with the course structure.

Therefore, while researchers have cited the importance of SOC in online courses and have related this feeling of connectedness to student satisfaction and indirectly to learning outcomes and retention, SOC had not been explored within these specific parameters. Consequently, in this study, three related questions were explored:

1. What factors are related to students’ perceived SOC within an online course?
2. Are student-reported SOC ratings in an online course more significantly related to student-student interaction or student-instructor interaction?
3. Is SOC in an online course related to student satisfaction (as measured by student survey), achievement (as measured by course grades), or retention, (as measured by intention to take more online courses)?

The third question is posed to help address a larger, more theoretical question, which is, “Do students need a sense of community in online learning environments?” Presumably, if SOC is related to satisfaction, achievement, and retention, it is likely needed in an online environment. On the contrary, if SOC is not related to satisfaction, achievement, or retention, then perhaps students do not need SOC in online environments.
**METHOD**

**Sample**

Seventy-one students in three online sections of a middle-division undergraduate psychology course at a medium-sized midwestern U.S. university were surveyed in fall 2005 and spring 2006, as part of a standard course evaluation (see Appendix A). This sample of students was selected because they participated in identical sections of the same course with the same instructor. The response rate for the online survey was high; 71 of 77 students (92%) completed the survey. Moreover, the student demographic characteristics were typical of the student enrollment at this university, with a large number of mature students (53% were over the age of 22). The mean grade for this course was a B, with 28 students receiving As, 32 receiving Bs, 8 receiving Cs, and 2 receiving Ds. With regard to experience with previous online classes, 53 (76%) had taken at least one Internet course (range 1-13) and 17 (23%) of the students indicated that this was their first online course.

**Procedure**

There were several technologies available in this online course for collaborative student-student and student-instructor learning and communication. These technologies and their average use per student per course section are summarized in Table 1 and detailed in the following paragraphs.

### Student-Student Interaction

There were two modes of communication available within the structure of this online course to foster student-student interaction: an asynchronous discussion forum and e-mail. Asynchronous discussion boards were used in the course design as they are one of the main platforms for interpersonal dialogue both between students and between students and instructors in online environments (see Marra, 2006). For this course, there was one topic posted on the discussion board for each of the 15 chapters (see Appendix B for samples of these topics). The instructor designed these to elicit both task-oriented and social-emotion-oriented replies (as per Liu & Ginther, 1999 and Gorsky & Capsi, 2005) as well as to be controversial, having no specific or correct answers (as per Blignaut & Trollip, 2003). Moreover, the online course was designed so that 5% of a student’s grade was dependent on participation in discussion thread posts. Students were required to post six posts throughout the semes-

### Table 1

<table>
<thead>
<tr>
<th>Type of Interaction</th>
<th>Technologies Available</th>
<th>Average Frequency of Use per Student per Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student to student</td>
<td>Asynchronous discussion board(^{a})</td>
<td>14 posts</td>
</tr>
<tr>
<td></td>
<td>E-mail</td>
<td>0 emails</td>
</tr>
<tr>
<td>Student to instructor</td>
<td>Asynchronous discussion board(^{a})</td>
<td>14 posts</td>
</tr>
<tr>
<td></td>
<td>E-mail</td>
<td>2 emails</td>
</tr>
<tr>
<td>Instructor to student</td>
<td>Asynchronous discussion board</td>
<td>0 posts(^{b})</td>
</tr>
<tr>
<td></td>
<td>E-mail</td>
<td>3 emails</td>
</tr>
<tr>
<td></td>
<td>Video lectures</td>
<td>15 lectures</td>
</tr>
<tr>
<td></td>
<td>Announcements</td>
<td>7 announcements</td>
</tr>
</tbody>
</table>

Notes: \(^{a}\)Asynchronous discussion board posts were required and served as a communication tool both between students and between students and instructor; thus, the same posts served two functions. \(^{b}\)The instructor posted 15 questions at the outset of the course, but did not reply to student comments on the discussion board. \(^{c}\)Video lectures were used for course delivery and were not used for individual communication, but could be considered interaction.
ter and were advised that the posts must be “meaningful and relevant.” These instructions were designed intentionally to be general and open-ended so that the students would feel open to contribute as little or as much as they wanted to the online learning environment. The actual number of posts per student per section is displayed in Table 2. Previous researchers, (e.g., Bullen, 1998; Hara, Bonk, & Angeli, 2000), have found that students tend to contribute only to the satisfaction of the minimum requirements. However, in this course, 43 students (61%) posted 7 or more posts, and 21 of those students (30% of the total enrollment for all three sections) posted 13 or more messages on the discussion board, which is substantially more than the six posts required. In contrast, while e-mails could be sent from student to student, the e-mail function was almost never used for communication between students (as shown by WebCT logs).

**Student-Instructor Interaction**

The same modes of communication were available within this online course to foster student-instructor interaction: the asynchronous discussion forum and e-mail. However, the usage of these tools was significantly different for student-instructor interaction. For example, in the discussion thread, the instructor posted the initial topics and read through the students’ posts as they were added, but made no further comments or attempts to elicit further responses. This strategy was employed purposefully so that the members of the course could set their own standards for responding to student comments. Thus, the main communication tool between students was rarely, if ever, used for student-instructor interaction. In contrast, the e-mail tool was used widely for instructor-student interaction and was used in place of feedback on the discussion board (e.g., if a student wanted feedback on a post, this was addressed through e-mail). In this course, the instructor received approximately 140 e-mails each semester per section. These e-mails were almost wholly comprised of students’ submissions of assignments, to which the instructor did not respond, but there was also an occasional technical or course-related question, which was responded to in a timely manner (almost always within 24 hours).

Two additional methods of instructor-student interaction need mention; however, they differ from traditional student-instructor interaction tools as the interaction proceeded from instructor to student, without the desire for there to be continuing communication. The instructor had an announcement tool available within WebCT, which she used five to eight times throughout the semester to announce upcoming assignments and exams. These announcements, which popped up as the students entered the home page, were addressed to the entire class and were instituted to maintain organizational clarity, not to foster social interaction. Additionally, the course instructor used archived Mediasite presentations to deliver course content. With this course delivery method, students had access to streaming video of the instructor (pictured from the waist up) delivering a lecture to an empty classroom.

**Data Collection**

After completion of their final exam, students were asked to complete an anonymous online survey within WebCT related to their sense of community, online interactions with both the instructor and other classmates, and intention to take another Internet course (the measure of retention in this study). See Appendix A. They were also asked to report their expected course grade. As the students were asked to fill out the online survey after taking the final exam and when all of the points for the course had already been calculated (aside from the final, which represented 17% of the final grade), the estimated course grades were very closely related to the actual grades given in the course (r = .97, p < .001). As the two scores were so significantly correlated, the term “course grade” will represent all further references to students’ reported course grades. Relevant results from this survey, subdivided by course section, are displayed in Table 2.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Section 1</th>
<th>Section 2</th>
<th>Section 3</th>
<th>Totals/ %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course grade</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>11</td>
<td>9</td>
<td>10</td>
<td>30 (43%)</td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>11</td>
<td>9</td>
<td>30 (43%)</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>9 (13%)</td>
</tr>
<tr>
<td>D</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1 (1%)</td>
</tr>
<tr>
<td><strong>Communicate w/class</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>14 (20%)</td>
</tr>
<tr>
<td>Rarely</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>15 (22%)</td>
</tr>
<tr>
<td>Very Often</td>
<td>10</td>
<td>12</td>
<td>6</td>
<td>28 (41%)</td>
</tr>
<tr>
<td>Sometimes</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Always</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>10 (14%)</td>
</tr>
<tr>
<td><strong>Communicate w/instructor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Rarely</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Very often</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>12 (17%)</td>
</tr>
<tr>
<td>Sometimes</td>
<td>4</td>
<td>8</td>
<td>2</td>
<td>14 (20%)</td>
</tr>
<tr>
<td>Always</td>
<td>12</td>
<td>12</td>
<td>15</td>
<td>39 (57%)</td>
</tr>
<tr>
<td><strong>Number of posts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4 (6%)</td>
</tr>
<tr>
<td>4-6</td>
<td>9</td>
<td>10</td>
<td>5</td>
<td>24 (34%)</td>
</tr>
<tr>
<td>7-12</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>21 (30%)</td>
</tr>
<tr>
<td>13 and up</td>
<td>11</td>
<td>4</td>
<td>6</td>
<td>21 (30%)</td>
</tr>
<tr>
<td><strong>Quality of posts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely poor</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Below average</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Average</td>
<td>12</td>
<td>12</td>
<td>13</td>
<td>37 (53%)</td>
</tr>
<tr>
<td>Above average</td>
<td>10</td>
<td>11</td>
<td>6</td>
<td>27 (39%)</td>
</tr>
<tr>
<td>Excellent</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>4 (6%)</td>
</tr>
<tr>
<td><strong>Discuss/debate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>4 (6%)</td>
</tr>
<tr>
<td>Rarely</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Sometimes</td>
<td>7</td>
<td>10</td>
<td>5</td>
<td>22 (32%)</td>
</tr>
<tr>
<td>Very often</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>18 (26%)</td>
</tr>
<tr>
<td>Always</td>
<td>12</td>
<td>4</td>
<td>7</td>
<td>23 (33%)</td>
</tr>
<tr>
<td><strong>Board content</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>True</td>
<td>15</td>
<td>18</td>
<td>19</td>
<td>52 (76%)</td>
</tr>
<tr>
<td>False</td>
<td>10</td>
<td>5</td>
<td>1</td>
<td>16 (24%)</td>
</tr>
<tr>
<td><strong>Board social</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>True</td>
<td>18</td>
<td>12</td>
<td>12</td>
<td>42 (62%)</td>
</tr>
<tr>
<td>False</td>
<td>7</td>
<td>11</td>
<td>8</td>
<td>26 (38%)</td>
</tr>
<tr>
<td><strong>Online retention</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>True</td>
<td>25</td>
<td>23</td>
<td>18</td>
<td>66 (96%)</td>
</tr>
<tr>
<td>False</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3 (4%)</td>
</tr>
<tr>
<td><strong>Student satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>20</td>
<td>15</td>
<td>18</td>
<td>53 (78%)</td>
</tr>
<tr>
<td>Medium</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>12 (18%)</td>
</tr>
<tr>
<td>Low</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3 (4%)</td>
</tr>
<tr>
<td><strong>Sense of community</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>True</td>
<td>15</td>
<td>11</td>
<td>10</td>
<td>36 (52%)</td>
</tr>
<tr>
<td>False</td>
<td>10</td>
<td>13</td>
<td>10</td>
<td>33 (48%)</td>
</tr>
</tbody>
</table>

*Note: n = 70, except where noted by * when n = 68 or n = 69, due to nonresponders. See Appendix A for survey questions.*
Where possible, at least two quantitative items were used to evaluate a single construct or criterion. However, there were some cases in which inclusion of more than one quantitative item to assess a single criterion would have appeared redundant. Consequently, quantitative analyses of student comments, often solicited when only one variable was used to measure a construct, provided additional validity for the single item survey measures. Further explanation of these criteria and reliability coefficients are provided in Table 3.

As is evident in Table 3, the inter-item correlations for most of the criteria were moderate to high, and Cronbach’s alpha is slightly under or exceeds the .70 cut off acceptable for social science research (Nunnally, 1978). It is important to note that the SOC measure, validated through quantitative analysis of student comments, was limited to a single-item intentionally. Other commonly-used measures of SOC (e.g., Rovai, 2002b) include items assessing feelings of student-student and student-instructor connection and learning. Use of such a measure would not have allowed for examination of one of the current study’s key research questions: whether learning and connectedness to classmates or instructor were related to SOC. In other words, one of the goals of this study was to test whether SOC is related to learning (achievement) and connectedness to classmates and instructor, so utilization of this scale would have accepted assumptions about the underlying constructs of SOC and presented obvious methodological concerns. Consequently, the SOC measure was limited to a one quantitative and one qualitative survey item.

**RESULTS**

In this section, the research questions are examined in turn. In the first part, the factors related to SOC are explored. In the second part, SOC is analyzed more specifically with regard to student-student and student-instructor interactions. In the third part, the relationship between SOC, and student satisfaction, achievement, and retention is analyzed. Finally, in the last part of the results section, the theoretical question of whether students need SOC in an online course is explored.

For all analyses, the course survey was used to measure students’ perceived SOC and the interaction factors related to it. Table 2 shows the frequency tables for all relevant survey questions, subdivided by course section. A MANOVA revealed no significant difference between course sections for any of the variables except for “I used the discussion boards to understand course content,” where one section differed significantly from the other two sections. As such, this item was dropped from the analysis and the groups were combined for statistical purposes.
Factors Related to Students’ Perceived Sense of Community

A Pearson correlation matrix was constructed to examine relationships between students’ perceived sense of community and the online interaction variables (see Table 4). Students’ perceived sense of community was significantly related to nearly every variable measured, with the exception of grade and intention to take another online course.

As there were significant correlations between sense of community and the communication variables, independent samples t tests were performed to determine if there were significant differences between the group of students who noted that they felt a sense of community within this online class and the group of students who noted that they did not feel a sense of community (see Table 5).

As is evident in Table 5, there were significant differences on nearly every factor, with the exception of grade and intention to take another online course.

Together, these analyses show that interaction with course content via discussion

### Table 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Grade</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Comm. w/class</td>
<td>ns</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Comm. w/prof</td>
<td>.43**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4. Post #</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Post quality</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6. Discuss/debate</td>
<td>.51**</td>
<td>.36**</td>
<td>ns</td>
<td>ns</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7. Board/social</td>
<td>.27*</td>
<td>.32**</td>
<td>.36**</td>
<td>ns</td>
<td>.34**</td>
<td>.27*</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8. Online retention</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>9. Satisfaction</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>.27*</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>.51**</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>10. Community</td>
<td>ns</td>
<td>.25*</td>
<td>.38**</td>
<td>.27*</td>
<td>.31**</td>
<td>.36**</td>
<td>.66**</td>
<td>ns</td>
<td>.36*</td>
<td>—</td>
</tr>
</tbody>
</table>

Notes: N = 70. *Course grade. **Communication with students and instructor and participation in discussion boards.
*Intention to take another online course. See Appendix A for survey questions. ns = nonsignificant correlation.
*p < .05. **p < .01.

### Table 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>Did Feel SOC (n = 37)</th>
<th>Did Not Feel SOC (n = 33)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>3.27</td>
<td>3.27</td>
<td>ns</td>
</tr>
<tr>
<td>Comm. w/class</td>
<td>3.16</td>
<td>2.21</td>
<td>.001**</td>
</tr>
<tr>
<td>Comm. w/prof</td>
<td>4.49</td>
<td>3.97</td>
<td>.035*</td>
</tr>
<tr>
<td>Post #</td>
<td>3.08</td>
<td>2.58</td>
<td>.022*</td>
</tr>
<tr>
<td>Post quality</td>
<td>3.68</td>
<td>3.24</td>
<td>.008**</td>
</tr>
<tr>
<td>Discuss/debate</td>
<td>4.16</td>
<td>3.36</td>
<td>.002**</td>
</tr>
<tr>
<td>Board/social</td>
<td>1.92</td>
<td>1.28</td>
<td>&lt;.00025**</td>
</tr>
<tr>
<td>Retention in online courses</td>
<td>2.00</td>
<td>1.90</td>
<td>ns</td>
</tr>
</tbody>
</table>

Notes: SOC = Sense of community. For scale variables, 1 = poor, 5 = excellent. For true/false variables, 1 = false, 2 = true. For Grade: 0 = F, 1 = D, 2 = C, 3 = B, 4 = A.
*p < .05. **p < .01.
boards, interaction with fellow students, and interaction with instructors were all related to students’ perceived SOC in this online course. In contrast, course grade and retention were not.

**Sense of Community and Student-Student Versus Student-Instructor Interaction**

One of the questions posed in this study was whether student-student and student-instructor interaction was more closely related to students’ perceived SOC. First, it must be noted that there was a significant difference ($t = 10.345, df = 69, p < .00025$) in students’ perceived ability to communicate with their instructor versus their perceived ability to communicate with fellow classmates within this online course. In fact, 77% of the students reported that they were able to communicate with the instructor either “very often” or “always,” while only 19% reported that they were able to communicate with their classmates either “very often” or “always” (refer to Table 2). This is an interesting finding, especially considering that the same methods of communication were available to communicate with fellow classmates and the instructor, as shown in Table 1.

To determine whether student-student interaction was more significantly related to SOC than student-instructor interaction, data were analyzed using a two-step method. First, all of the survey measures related to student-student interaction (*ability to communicate with classmates, use of discussion board to get to know classmates, and ability to discuss and debate class topics with classmates*) and all of the measures related to student-instructor interaction (*ability to communicate with instructor and opportunity to communicate with instructor*) were entered into a principal components factor analysis with a varimax rotation (see Table 6).

Results showed two distinct factors with eigenvalues greater than one: all of the student-student interaction measures loaded on one factor (eigenvalue = 2.276), and all of the student-instructor measures loaded on the other (eigenvalue = 1.049). These two distinct factors, student-student (S-S) interaction and student-instructor (S-I) interaction, were then saved as standardized factor scores for the second part of the analysis. In this second step, Pearson correlations were used to analyze whether the S-S and S-I factor scores were significantly related to the SOC measure. From this analysis, it was found that while the student-student interaction factor was significantly related to SOC ($r = .653, p < .00025$),

<table>
<thead>
<tr>
<th>Table 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor Loadings</strong>&lt;sup&gt;a&lt;/sup&gt; for Student-Student and Student-Instructor Variables</td>
</tr>
<tr>
<td><strong>Factor</strong></td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Ability to get to know classmates</td>
</tr>
<tr>
<td>Use of discussion board to get to know classmates</td>
</tr>
<tr>
<td>Ability to discuss/debate class topics with classmates</td>
</tr>
<tr>
<td>Ability to get to know instructor</td>
</tr>
<tr>
<td>Opportunity to communicate with instructor</td>
</tr>
<tr>
<td>Explained variance</td>
</tr>
<tr>
<td>Proportion of total</td>
</tr>
</tbody>
</table>

*Note:*<sup>a</sup>Orthogonal Varimax rotations with Kaiser normalizations were used in the factor analyses, which revealed more than one component.
the student-instructor interaction factor was not \( r = -0.016, p = 0.894 \). Thus, the student-student interaction factor proved to be the only factor significantly related to students’ perceived sense of community.

**Sense of Community, Student Satisfaction, Achievement, and Retention**

As shown in Table 4, sense of community was significantly related to student satisfaction \( r = 0.36, p < 0.05 \). In contrast, the correlations between students’ reported “sense of community” and student achievement (as measured by course grade), and retention (as measured by intention to take another Internet course), were weak and not significant, \( r = 0.002 \) and \( r = -0.078 \), respectively. Therefore, in this analysis of sense of community, SOC appears to be related to student satisfaction, but not achievement or retention.

**Do Students Need Sense of Community in an Online Course**

The correlational analyses showed that students’ perceived SOC, while related to student satisfaction, was not significantly related to either achievement or retention. If satisfaction, achievement, and retention are goals of Internet courses, and SOC is not related to them, the answer to the theoretical question of whether students need SOC in an online course does not appear to have a straightforward answer. To analyze this question further, an indirect method of qualitative assessment was used. In the survey, students were asked if (and why) they prefer online courses over FTF courses and why they did or did not feel a sense of community in the course. These questions were included to help elucidate the structures or methods that students feel they desire or need that may be present in an FTF environment and not present in the online environment.

With regard to the first question of whether students preferred FTF or online courses, 55 of 70 (79%) of the students indicated that they preferred online courses. In a follow-up question, students were asked to comment on their preference. A majority (75%) of the students who indicated that they preferred an online course cited a flexible schedule and convenience (either time or distance) as the factors that contributed to their preference of an online course over a FTF course. Meanwhile, the comments of students who stated that they preferred FTF over online courses fell into four main categories, shown in Table 7.

As is shown in Table 7, there were two comments related to difficulties timing and planning in an online environment, but most of the comments were related to social interaction and learning. In this course, the reason most cited for preference of FTF environments was increased or easier communication with classmates and instructors (a total of six comments were related to this aspect of the course design). Moreover, an additional four students indicated that they were better able to understand information that is presented in a FTF context.

<table>
<thead>
<tr>
<th>Comments Mentioned</th>
<th>Number of Times Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>More interaction with classmates</td>
<td>3</td>
</tr>
<tr>
<td>More interaction with instructors</td>
<td>3</td>
</tr>
<tr>
<td>Better understanding of material in face-to-face setting</td>
<td>4</td>
</tr>
<tr>
<td>Easier to time and plan in face-to-face setting</td>
<td>2</td>
</tr>
</tbody>
</table>

**Note:** If students mentioned more than one reason in their answers, additional comments were included in relevant category.
With regard to the second survey item, why students did or did not feel SOC in the course, qualitative analysis of student comments gave additional information regarding whether students’ feel a need for SOC in online course environments. Fifty-four of 71 (76%) of the students left additional comments related to their feelings of SOC in the course. These student comments fell into three main categories. First, many students enjoyed the interaction between students and felt a sense of community within the course. For example, students said:

It was nice because we got to learn a lot about most of the students and this gave us the opportunity to share our thoughts and ideas.

There was a definite sense of community. Everyone was very helpful and respectful.

Second, most students who added comments related to SOC cited the discussion board specifically, stating, for example,

The discussion posts really brought the class together.

The discussion threads helped people relate to each other [on] certain topics.

I enjoyed interacting through the discussion board.

Finally, some students not only felt no SOC in the course, but also stated that they didn’t want or need SOC in online courses. For example:

If I wanted community, I would have chosen a regular [face-to-face] class.

It’s an Internet course … people aren’t on them to become a community.

It was an Internet course, so I didn’t talk much with my classmates.

Thus, the comments related to SOC fell into three broad categories. The first two categories of comments confirm that many students did feel a sense of community in the course and that this sense of community was related mainly to their communication with fellow students on the discussion boards. Incidentally, none of the students cited communication with the instructor as a variable that influenced their feelings of SOC. The last category of comments, solicited from both students who did and did not feel SOC in this course, demonstrates that there are students who not only do not expect SOC, but also do not feel a need for SOC in an online course environment.

**DISCUSSION OF FINDINGS**

In recent research related to online pedagogy, there has been a great amount of debate and commentary related to the types of interactions that should be included in online courses and the importance of establishing social communities within these courses. Recent distance education work has examined the types of questions, discussions, and technologies to include in online courses as well as the effectiveness and necessity of different modes of communication (both student-student and student-instructor) within these forums. Much of the debate and commentary surrounding this topic reflects back to Vygotsky’s (1978) social learning theory, which suggests that social interaction within a learning environment is essential to constructing knowledge.

This first part of this study focused on one aspect of this debate: the relationship between interaction methods and sense of community. “Sense of community” is the term commonly used to refer to the feeling of belonging that is established among learners who have common interests and goals and participate in joint activities (Rovai, 2002a). Recent researchers have shown that when learners interact, either amongst themselves or with instructors, a valuable learning community where learning takes place in social contexts, can be established (Gorsky & Caspi, 2005; Hiltz & Wellman, 1997; Lapointe & Gunawardena, 2004; Salmon, 2002; Swan et al., 2000). In this study, students’ perceived sense of community was examined in relation to student-student,
student-instructor, and student-content interactions. Results showed that students’ perceived SOC was significantly related to the interaction modes available in the course (student-student, student-instructor, and student-content). Greater sense of community was reported among students who reported a greater ability to communicate with fellow students and the instructor, whose discussion board posts were greater in number and quality (self-assessed), and who used the discussion board for discussion of content and getting to know classmates. These findings support existing literature that encourages the use of asynchronous discussion threads to foster a sense of community in online learning environments (e.g., Swan, 2002).

With regard to the importance of student-student interaction versus student-instructor interaction in students’ perceptions of SOC, the results of this study showed that only student-student interaction was related to students’ perceived SOC. These results were not entirely unexpected, and relate well to Woods’ (2002) finding that increasing an instructor’s communication with students does not bolster student satisfaction. Interpreted in conjunction with Woods’ findings, these results suggest that SOC is fostered mainly through communication between students, and that instructor-student interactions may not necessarily foster students’ sense of community in an online environment.

With regard to whether students’ perceived SOC was related to satisfaction, achievement, or retention in an online course, the results were mixed. First, there was a significant relationship between SOC and student satisfaction, providing a complement to Ouzts’ (2006) study, which employed a between-class design to explore this same topic. Second, it was found that SOC was not related to student achievement (as measured by course grade). This finding was surprising, especially due to the great amount of literature that has been devoted to the topic of social learning theory and the importance of interaction within online environments. Nonetheless, it appears that higher levels of social interaction and students’ perceived sense of community were not associated with superior performance in the online class. Lastly, there was no significant relationship between SOC and retention in an online course of study, which is surprising considering the indirect link between SOC, satisfaction, and retention. This was most strongly illustrated by the fact that while 37 students indicated that they did not feel a sense of community in this course, only three of these students indicated that they would not take another Internet course. This finding, coupled with the finding that sense of community is related to student satisfaction, suggests that students do not necessarily have to be satisfied with the social aspects of the online course specifically to remain enrolled in online courses generally.

All of the preceding analyses were performed to help address a critical theoretical question, which is “Do students need SOC in an online course?” The findings suggest that SOC is not necessarily an essential component of online classes. As shown, students’ SOC was not related to either course grade or intentions to take more online courses, which implies that SOC may not be necessary in this online course format. However, analysis of the student comments showed that there were students who want the type of social interaction that is present in FTF environments. In the analysis of students’ comments on preference of FTF environments over online environments, it was found that some students, especially those who prefer FTF courses over online courses, desire SOC. Furthermore, some students feel that they learn better in a FTF context, suggesting that there is some aspect of a FTF context, perhaps a social one, that bolsters understanding of course material.

In direct contrast, qualitative analysis of student comments also showed that some students felt that sense of community was unexpected and unnecessary in the online course curriculum. Many students also cited the convenience of the asynchronous, self-paced course as their reason for preferring online
courses over face-to-face classes. This corresponds with findings from other researchers that students prefer asynchronous log-ons, discussion threads, and individual assignments (e.g., Butler & Pinto-Zipp, 2006; Swan et al., 2000), activities that do not necessarily foster a sense of community, but allow for individual freedom and convenience.

In sum, sense of community, while not necessary to all for increased performance, satisfaction, or retention, appears to be desired by some students in the online learning environment. However, while SOC is desirable to some, it is equally undesirable to others, as exemplified by student comments. These findings support the assertion by Rourke et al. (1999) that there may be a level of social interaction that is ideal in online communities and that care should be taken to avoid exceeding that level. Future research should focus on qualifying this “ideal amount” of student-student and student-instructor interaction within many different types of online interactive instructional environments so that educators are better able to construct effective social settings within the online classroom.

**Limitations and Pedagogical Implications**

Limitations are inherent within the designs of studies such as these as the results can only be interpreted within the context of the instructional framework presented. Therefore, the relationships between SOC, student interactions, and learning and satisfaction outcomes demonstrated here are relevant to online courses that have: a minimal amount of required interaction between students; opportunities for students to communicate directly with the instructor; and organizational structures that are sufficient for a majority of the students to feel that they are interacting within an instructional framework that is both straightforward and organized.

Recommendations for pedagogical practice can be made only with consideration for the parameters mentioned in the limitations. With that in mind, the results of this study suggest that instructors may be able to foster interactive relationships with their students, with students perceiving a high degree of instructor availability, with only a minimal amount of reciprocal interaction. In this case, the instructor-to-student interaction entailed video lectures, occasional whole-class announcements, and prompt reply to individual student e-mails (typically within 24 hours). Only one of these instructor-student interaction methods was reciprocal and required prompt individual attention: e-mails. Thus, if organized content delivery structures are in place before a course begins, instructors can foster positive, interactive relationships with online students without spending an exorbitant amount of time in individual communication with these students. Additionally, the present research suggests that efforts to increase SOC might be best directed towards enhancing or increasing student-student interaction within an online course, as this factor, and not the student-instructor interaction factor, was significantly related to students’ perceived SOC. Finally, the results of the study show that while some students appear to want more interaction and SOC, there are other students who do not want interaction and SOC in an online course. As such, this finding suggests that designers of online courses consider students’ motivation for taking online courses (e.g., time constraints and working at own pace) and create online interaction forums that are compatible with these motivations.

**APPENDIX A: ONLINE COURSE SURVEY**

1. Age group: Under 18 ___ 19-22 ___ 23-30 ___ 31-40 ___ 40 and up ___
2. Expected course grade: A ___ B ___ C ___ D ___ F ___
3. Please estimate the number of posts you added to the discussion thread board throughout the semester. a. 0-3 b. 4-7 c. 8-12 d. 13 and up
4. I would rate the quality of my discussion thread posts as: a. Poor b. Below Average c. Average d. Above Average e. Excellent
5. I knew what work was expected of me and what deadlines were approaching for assignments and exams. a. Never b. Rarely c. Sometimes d. Often e. Always
6. I had the opportunity to communicate with the instructor. a. Never b. Rarely c. Sometimes d. Often e. Always
7. I had the opportunity to communicate with and get to know my classmates. a. Never b. Rarely c. Sometimes d. Often e. Always
8. I was able to discuss and debate issues related to class topics with my classmates. a. Never b. Rarely c. Sometimes d. Often e. Always
10. I felt that the internet aspect of the class was easy to use and straightforward. a. True b. False
11. Please comment on what was or was not straightforward.
12. I felt that I shared a sense of community with my classmates. a. True b. False
13. Please comment on the sense of community in this course.
14. I felt that I had adequate opportunity to communicate with my instructor. a. True b. False
15. Please comment on your ability to communicate with your instructor.
16. An internet course is more appealing to me than a full classroom-based course. a. True b. False
17. Please comment on why an internet or a full-classroom based course would be more appealing.
18. I would take another internet course. a. True b. False
19. Please comment on why you would or wouldn’t take another internet course.
20. The discussion boards helped me understand course content. a. True b. False
21. Please comment on how the discussion boards helped you (or didn’t help you) with course content.
22. The discussion boards helped me get to know my classmates. a. True b. False
23. Please comment on how the discussion boards did (or didn’t) help you get to know your classmates.
24. Please write any additional comments about the online course structure that we may use in further course development.

**APPENDIX B:**

**SAMPLE DISCUSSION THREAD FORUM TOPICS**

1. What do you think about John Locke’s proposition of a tabula rasa? What about original sin and innate purity?
2. What do you think of Freud and his theories? With what do you agree? With what do you disagree?
3. With advances in genetic counseling and genetic engineering, we are heading to a place where superbabies may be possible. Where should the limits be set?
4. Give an example of a positive and negative punishment that you have either given or received. Which one was more effective?

**REFERENCES**


Richardson, J., & Ting, E. (1999, October). *Making the most of interaction: what instructors do that most affect students’ perceptions of their learning.* Paper presented at the 5th International Conference on Asynchronous Learning, College Park, MD.


Michelle A. Drouin

"I was absent last week, did I miss anything?" asks Jason, a student in my face-to-face class.

"Hmm..." I say and then pause. I understand that Jason really wants to know what he missed and how he can gain access to what he missed, but the question always vexes me. Does Jason think I canceled class because of his absence? Of course he missed something!

"Well Jason, you missed three lectures," I say. "The lecture outlines are in Blackboard, but you should try to get the lecture notes from another student."

"Alrighty," Jason mutters and goes back to his seat.

Neither of us is happy with this exchange. Jason probably wants me to recount the three lectures for him (preferably in written, outline form), and I want to be able to give Jason a better alternative than "make a friend and ask for notes," especially if he has a legitimate reason for his absence.

Unfortunately, the frustrating "Did I miss anything?" question and interchanges that follow are common in my face-to-face classes, occur sometimes in my hybrid classes, but never surface in my classes that are delivered online through a course-management system (CMS). This is just one of the many reasons I cherish my CMS and why you should learn more about yours.
What is a CMS?

Course-management systems (CMSs) are packaged software systems (e.g., Blackboard) that allow the creation of online learning environments. Many instructors, especially new technologically savvy instructors, use one or more CMSs with relative ease (e.g., Beatty & Ulasewicz, 2006; Papastergiou, 2007), but some instructors hesitate to use CMS for a number of reasons, including discomfort with technology and desire to protect intellectual property (Chisholm, 2006). With online course offerings becoming more prevalent in academic institutions (Allen & Seaman, 2007), even instructors hesitant to use CMS are sometimes forced to reevaluate their attitudes and beliefs toward instruction to accommodate today’s learners. Moreover, once involved in creating courses delivered through CMS, instructors must learn new pedagogical approaches, as creating an engaging learning experience poses different types of challenges when students are not physically present (Angeli, Valanides, & Bonk, 2003). In this chapter, I will provide an overview of CMS, discuss some of the instructional approaches relevant to CMS, and introduce the tools that I consider indispensable in supporting instruction in face-to-face (FTF) and online courses.

Which CMS?

There are many CMSs available. Some, such as Angel, Blackboard, and Desire2Learn, require commercial licenses and are typically purchased by institutions; others, such as CourseWorks, Moodle, and Sakai, are open-source (i.e., systems that have no license fees) and can be used by individuals or institutions (EduTools, 2009). Two of the more popular CMSs in North America and Europe are Blackboard, the leading commercial CMS, and Moodle, the leading open-source software package (The Campus Computing Project, 2008; Trotter, 2008). Blackboard dominates the higher education market in the United States: more than 50% of the institutions surveyed in 2008 indicated that it was the sole CMS used on their campus (The Campus Computing Project, 2008). However, the survey also showed that many institutions have shifted from commercial CMS to open-source CMS, and about a fourth of those surveyed intend to do so within the next 5 years. This shift is likely due to cost, quality, and ease of use issues. Although there are no site-license fees, open-source CMSs are not free because information technology
(IT) service teams are still needed to administer, maintain, and troubleshoot the systems. However, as more universities adopt open-source CMS, operating issues can be communicated across campuses, which may cut down on costs, and the programs can be refined for ease of use. Thus, in the next 5 years, there might be a change in the landscape of higher education away from commercial CMS toward open-source CMS.

All CMSs provide course developers with a variety of tools, such as e-mail, grade books, chat rooms, content areas, and assessment functions (EduTools, 2009; Hayes, 2000), that require no programming skill on the part of the developer. However, not all CMSs offer the same tools, and some have better features than others. For example, not all CMSs have a whiteboard application (i.e., an online chalkboard that has both typing and drawing features) and although most CMSs have an e-mail tool, not all have a searchable address book within that tool. For a side-by-side comparison of the tools and features of the popular CMSs, visit the EduTools Web site at: http://www.edutools.info/item_list.jsp?pj=4. I could use pages of text to describe the pros and cons of the various CMSs, but most instructors use the CMS that is either purchased for or managed by their campus. Thus, I will shift my discussion to the aspects of CMS that instructors are able to control: CMS tools and instructional strategies.

How Do Teachers Choose the “Right” CMS Tools and Instructional Strategies?

Choosing the “right” tools to use in a CMS environment depends largely on one's instructional strategies. So before we discuss tools, let's first turn our attention to instructional strategies.

Choice of CMS Instructional Strategies

When building their online courses, many instructors use the same instructional strategies as they use in their FTF courses. For example, instructors building a CMS-delivered course might use their existing FTF course materials (e.g., PowerPoint slides, exams, and assignments) and might try to implement the same types of activities (e.g., lectures and within-class discussions). When instructors take this approach to building their CMS-delivered course, there is likely to be continuity between online and FTF sections in terms of course content, which seems like a desirable outcome for those
wishing to provide an equivalent experience to their online and FTF learners. However, this begs the question: Are the online and FTF environments equivalent? And, for that matter, should similar instructional strategies be employed in both settings?

The question of whether the FTF environments are “equivalent” is one that is debated and will not be resolved here. However, there are many similarities between the two environments. For example, there are learning objectives, learning activities, and means of assessing student performance in both FTF and CMS-delivered courses. That said, there are also some notable differences. The most obvious difference is that the instructors and students are physically present in the FTF classroom, but they are not physically present in the online classroom. Not surprisingly, these “classroom” differences create different challenges for instructors (Angeli et al., 2003). For example, as illustrated in the vignette at the beginning of this chapter, instructors may not have as many online resources for their FTF students as they do for their online students when students have “missed class,” which challenges instructors to find alternate ways to help FTF students access the material they have missed. On the other hand, some activities might be more challenging for instructors to implement in their online classrooms than in their FTF classrooms. For example, it may be difficult for instructors to organize interactive learning activities for students in the online classroom, whereas this type of group work is relatively easy to organize in a FTF classroom. Therefore, before applying a FTF instructional strategy to the online classroom, one must consider how differences in an online classroom might affect the implementation of a FTF instructional strategy.

Let’s consider this question in terms of a specific instructional strategy. One frequently cited instructional model is based on social constructivism, or the idea that students learn best through active participation and the exchange of information with others (Vygotsky, 1978). According to Vygotsky, knowledge is constructed within social contexts; learning cannot be separated from the environment within which it occurs; and collaboration within social environments is essential to learning. Social learning instruction methods are considered part of “good practice” in undergraduate education (e.g., Chickering & Gamson, 1987), but will these same social learning methods work in a CMS-delivered course?

Many researchers say “yes,” and there is empirical research that emphasizes the importance of social interaction in online learning environments to promote learning (e.g., Garrison, Anderson, & Archer, 2001; Hull &
Saxon, 2009). In fact, there are even social interaction models that have been applied specifically to computer-mediated communication (CMC) environments. For example, Moore (1989) subdivided the interactions that take place in an active learning environment into learner-content, learner-instructor, and learner-learner interactions. Within this model, effective interactions between these three entities are essential to the construction of knowledge. Presumably, these effective interactions could take place in any learning environment (FTF or online) and would promote student learning. However, as some studies have shown (e.g., Papastergiou, 2007), social learning strategies are not always easy to implement in online environments.

Papastergiou (2007), an instructor teaching computer science education, was accustomed to using social constructivist learning strategies in her FTF classroom and tried to implement these same strategies in a hybrid class on the same topic. However, she found that the CMS lacked features that she needed to support her instructional goals (e.g., notification system that would alert her of students' latest updates to the assignments, discussion, and workgroup sections). She also noted that attempting to implement a social constructivist approach online required significantly more of her time and effort than when she used the approach in her FTF courses. Consequently, Papastergiou asserted that the social learning method was difficult to employ via CMS.

Considered together, these studies (e.g., Garrison, Anderson, & Archer, 2001; Hull & Saxon, 2009; Papastergiou, 2007) give a mixed review of the social learning strategy for online learners, suggesting that it is effective, but it may be more difficult to implement online than FTF. More generally, these studies emphasize how important it is for online instructors to be thoughtful about their choice of instructional strategies and to assess the effectiveness of those strategies. Also, the studies highlight an important point: the FTF and online classrooms are different venues, specifically with regard to social interaction.

Although many online learners believe that social interaction is important (e.g., Drouin, 2008; Ouzts, 2006), they usually do not engage in the same types of social learning activities as FTF learners (Kearnsley, 2000; Reeves, Herrington, & Oliver, 2004), and they may not need or want the same types of interactions that are present in the FTF classroom (Drouin, 2008). Instructors who try to engage online students in social learning activities may become disheartened when they find that their online students prefer to work independently, log on asynchronously, and communicate with fellow classmates.
via threaded discussions rather than synchronous chats (Butler & Pinto-Zipp, 2006). However, rather than becoming disheartened, instructors must recognize that the main reasons students enroll in online courses are because they have time restrictions and online courses are “convenient” (Butler & Pinto-Zipp, 2006). Thus, instructors may have to adjust their instructional methods accordingly.

Unfortunately, there is no one-size-fits-all instructional strategy for CMS environments. My recommendation to novice online instructors is to try out the instructional strategy that you currently use in your FTF classroom. If you find that strategy ineffective or too labor-intensive, make adjustments. My only cautionary advice concerns social interaction: be mindful of the types of social learning activities you employ in the CMS classroom, as it seems especially important to create an online learning environment where there is enough interaction for some and not too much for others.

**Choice of CMS Tools**

Just as choosing the appropriate instructional strategy is important to the delivery of a course, so too is selecting the appropriate tools for that course. This is true in both FTF and CMS settings. However, some first-time CMS users are overwhelmed by the sheer number of tools available in their CMS courses, and others are unsure of how to align the tools to their instructional goals. If we return to Moore’s subdivision of the types of interactions that occur in active learning environments and map specific tools to those interactions (see Table 10.1 for interactions, tools, and my frequency of use of these tools in FTF and online courses), we can see that this could be quite confusing.

First, it’s evident that more than one CMS tool can be used to support each mode of interaction (e.g., e-mail and discussion boards both facilitate student–student interaction), and many tools serve multiple functions (e.g., discussion boards facilitate student–student, student–instructor, and student–content interactions). Second, researchers have suggested that instructors align the tools they use with their instructional goals (Dick & Carey, 1996) but that they should avoid using too many CMS tools, because too many tools might interfere with, rather than promote, learning (Koszalka & Ganesan, 2004). Thus, it’s no surprise that novice CMS instructors may feel anxious when setting up their courses for the first time.

Unfortunately, this anxiety may actually paralyze some instructors into stagnation—maintaining instructional methods or tools that are outdated or
Table 10.1
MS Tools and Frequency of My (or My Students') Tool Usage Categorized by Interaction Types

<table>
<thead>
<tr>
<th>Type of Interaction</th>
<th>Compatible Tools</th>
<th>Frequency of Tool Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student–Student</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bidirectional interaction between students</td>
<td>E-mail</td>
<td>Frequently</td>
</tr>
<tr>
<td></td>
<td>Discussion board</td>
<td>Occasionally</td>
</tr>
<tr>
<td></td>
<td>Chat</td>
<td>Rarely</td>
</tr>
<tr>
<td></td>
<td>Assignments</td>
<td>Never</td>
</tr>
<tr>
<td><strong>Student–Instructor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction between student and instructor; may go between student and instructor interaction changeably or from instructor only</td>
<td>E-mail</td>
<td>Sometimes</td>
</tr>
<tr>
<td></td>
<td>Syllabus</td>
<td>Always</td>
</tr>
<tr>
<td></td>
<td>Chat</td>
<td>Rarely</td>
</tr>
<tr>
<td></td>
<td>Announcements</td>
<td>Always</td>
</tr>
<tr>
<td></td>
<td>Assessments</td>
<td>Never</td>
</tr>
<tr>
<td></td>
<td>Discussion board</td>
<td>Rarely</td>
</tr>
<tr>
<td></td>
<td>Assignments</td>
<td>Never</td>
</tr>
<tr>
<td></td>
<td>Calendar</td>
<td>Never</td>
</tr>
<tr>
<td><strong>Student–Content</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction between student and course content; student must initiate interaction</td>
<td>Content pages</td>
<td>Sometimes</td>
</tr>
<tr>
<td></td>
<td>Assessments</td>
<td>Always</td>
</tr>
<tr>
<td></td>
<td>Media library</td>
<td>Never</td>
</tr>
<tr>
<td></td>
<td>URL links</td>
<td>Sometimes</td>
</tr>
<tr>
<td></td>
<td>Discussion board</td>
<td>Rarely</td>
</tr>
<tr>
<td></td>
<td>Assignments</td>
<td>Never</td>
</tr>
</tbody>
</table>

Interactions may originate from student or instructor.
Interactions may originate from instructor only.

ineffective while avoiding new technologies that may improve their teaching effectiveness. Instructors hoping to move beyond this stagnation often turn to instructional designers, seasoned online instructors, and the online pedagogical literature to take the tentative first steps in course building. By using these resources, instructors can be strategic in selecting their CMS tools so that their instructional goals are supported and the environment facilitates learning for the population of learners engaged in the course.
So, Which CMS Tools Are Best?

Let me give a disclaimer: There is no exact recipe for creating the perfect CMS-delivered course! Instructors need to use the tools that they feel are most appropriate for their content, teaching style, and students. That said, as a seasoned online instructor, I have a lot of experience using CMS (WebCT initially and now Blackboard Vista) to manage and deliver course content to my FTF and online learners. Through trial and error, I've found some tools are more important and helpful to my teaching than others, and I will detail those here. However, keep in mind that my instructional approach is based on a social learning model (which works for me, but I'm not suggesting you adopt it), and I've needed to revise this approach slightly for my classes delivered entirely through CMS.

In the next few sections, I will give some specific CMS tool recommendations (see also Table 10.1). First, I will present my bare-bones approach (i.e., the skeletal CMS features that can be employed in almost any course), and then I will present a more detailed approach, targeted specifically to instructors delivering classes wholly within the CMS.

The Bare-bones Approach

Instructors wishing to familiarize themselves with a CMS may choose to implement just some "bare-bones" tools to supplement their FTF courses as a precursor to developing a wholly online course. I believe a core group of features would likely be useful for all courses, whether they are wholly online or FTF with a supplemental CMS component.

Nearly every course would be complemented by the use of a CMS grade book. Within CMS systems, instructors can post grades for exams and assignments and students can log in with their usernames and passwords to access these grades (listed in the order they appear in the grade book). This instructional feature is incredibly easy to implement when the university system uploads the class roster automatically, and although slightly less convenient when instructors must upload the rosters manually, it is still a relatively straightforward, password-protected way to administer grades.

Another useful CMS tool is the announcements feature. Instructors can post announcements for the whole class and can even elect that these announcements “pop up” when students log in to the CMS. This feature helps instructors keep in touch with students and maintain a social presence
in the course. It can also be useful for the organized or forgetful instructor, as within Blackboard (and many other CMSs) instructors can choose to release an announcement at a specific time and date, and announcements can be created and timed for release even before the semester begins.

Similar to e-mail outside of CMS, e-mail within CMS provides a medium for student-student and student-instructor exchanges. The attractive feature of e-mail within the CMS (over e-mail outside of the CMS) is that it provides a simple course-specific communication medium. Also, with a searchable address book, which is a feature of some CMSs, students can easily find the e-mail address of other students in the course, the TA, or the instructor.

The syllabus tool is often little more than a content page with the title "syllabus." But as it has its own designated icon within CMS, the syllabus tool is one that is easy to implement and useful for students. Also, posting the syllabus within the CMS makes it possible for students to access it at any time, but the information is restricted to course members, thereby protecting intellectual property.

The More Detailed Approach

In addition to the "bare-bones" tools I employ to support FTF courses, I consider a number of CMS tools integral to my delivery of online courses. These tools are all Blackboard tools, as this is the CMS that my university uses; however, similar tools exist in other CMSs. Please refer back to Table 10.1 to see a list of the tools that I use often in my online courses. As shown, there are many tools that I use either "very often" or "always" in my online courses, and these tools are not always the same tools that I use in my FTF courses.

Although I rarely use the discussion board in my FTF classes, I always use it in my online courses as a way for students to interact with each other and the course content. I post questions for every chapter, and these questions are designed to elicit both task-oriented and social-emotion-oriented replies (as per Gorsky & Capsi, 2005 and Liu & Ginther, 1999). Also, the questions are designed to be thought-provoking and sometimes controversial (Blignaut & Trollip, 2003). I assign students course credit (totaling 5% of the students' grades) for participating in these discussions, and I require them to post a "meaningful and relevant" response to six topics throughout the semester. I give only these general guidelines and no specific grading rubric.
Generally, this approach works quite well with most of my psychology students. Although they are required to post only 6 responses per semester, about one third of the students in my online courses post more than 12 responses (as shown by Blackboard logs), which is substantially greater than the minimum requirements. These results are especially encouraging when one considers that previous researchers (e.g., Bullen, 1998; Hara, Bonk, & Angeli, 2000) have found that students tend to contribute only until they have satisfied minimum requirements. Nevertheless, other online instructors have employed different discussion board techniques (e.g., using more concrete rubrics to “grade” discussion posts, or requiring participation as a greater percentage of course grades) with success as well. So, there are many approaches to discussion boards that may work well in a given CMS course.

*Content pages* can hold many different types of information (e.g., text, audio, or video files); *media libraries* hold only media (e.g., audio and video files); and *URL links* lead students to external Web pages (e.g., a publisher’s Web site, which may contain interactive activities, such as quizzes and flashcards, designed to support learning). I have grouped several course tools together because these tools are all used to deliver course content, and also because these features could, in some cases, be used interchangeably to deliver the same content. For example, in my online courses, I use a variety of media (e.g., audio files, video files, screen captures) to deliver my course content. These media files can be embedded in a content page, downloaded from a media library folder, or accessed through a URL link. In each case, my students are able to access the same material, but they are just accessing the material from different locations. My choice of where to upload my file is based on two criteria: how easy it will be to find and how easy it will be to access. In most cases, I embed files within Blackboard (rather than on an external Web link) so that students do not have to click back and forth. I also make herculean efforts to be sure that the files can be opened by all students (e.g., those with different computer operating systems and software packages, pop-up blockers, slow Internet connections) by including alternate file types (e.g., both Microsoft Word and Adobe documents) and trying the links on several different computers while I am building my course.

With regard to specific media, I advise instructors to deliver their course content in any way they think is appropriate. Content delivery methods range from the basic (e.g., static content pages containing reading material) to the embellished (e.g., streaming video lectures and interactive online activities).
There is some evidence that suggests that media-rich content (including animations, simulations, and audio files) is well received by students and helps to promote learning (Lam & McNaught, 2006). However, the quality of the media appears to be an important factor in influencing student learning outcomes (Lam & McNaught, 2006). In my media-rich online courses, students have expressed satisfaction with particular media features, such as:

- **Video lectures.** I use streaming videos (videos that do not download, but rather stream continuously and play as they arrive at the student's computer) to deliver my online course lectures. By using a program called Mediasite, students are not only able to see my PowerPoint slides (as they could with Adobe Presenter or Impatica), but they are also able to see video of me delivering the lectures. Adobe Presenter and Impatica are also great tools for content delivery, but with these programs, students are able to see only the PowerPoint slides with accompanying audio. Mediasite also has a synchronous feature (that I don't use) so that students could log in and view the lecture when the instructor is delivering it live. These lectures are stored on a university server and cannot be downloaded or saved by the individual students, which protects intellectual property. Moreover, even students with very slow Internet connections can access the streaming videos without encountering complications related to bandwidth (i.e., the rate at which data is transferred).

- **Supplementary videos.** To elaborate on course concepts, I often post supplementary video clips. These clips can be from external URL links, such as YouTube, Discovering Psychology online series, or Nova, or can be from digital files uploaded into the CMS. *Note: Before uploading video files into the CMS, see an instructional designer about copyright laws and the "fair use" act.*

- **Interactive exercises.** Interactive exercises (such as quizzes, crossword puzzles, and flashcards) can be great interactive tools for students. As most publishers offer interactive exercises on their Web sites as complements to their textbooks, instructors can easily embed the URL links into their content pages.
There are some instructor-only tools that are not included in Table 10.1 that I consider integral to my online course delivery. The first is student tracking. In the FTF environment, an instructor might notice when a student has been absent for a few weeks, but a CMS environment provides no automatic cues to the instructor that a student has been missing. However, within the CMS, instructors can get valuable information about their students' attendance and participation. For example, an instructor can see when the student logged in for the first time and logged in for the last time, and how much time he or she has spent in that course during a particular window of time. The tracking feature can also provide individual tool usage information, such as how many URL links and content pages the student accessed, how many discussion board posts the student submitted and accessed, and how many e-mails the student read and sent. Thus, by using this tracking tool, instructors can see whether students are participating "actively" in the course or not.

Some instructors choose to access the tracking data only at the end of the course to see, for example, how many discussion board posts the students submitted throughout the semester. However, other instructors monitor student participation regularly and send e-mails to students who are not participating at an appropriate level. Whether this prompting leads to greater retention in these courses is an empirical question that needs exploration.

The other instructor-only tool that I find indispensable in my online CMS courses is selective release. The selective release tool is used primarily by instructors who are running an instructor-paced course (i.e., the instructor releases the course information, assignments, and exams at a particular time) rather than a self-paced course (i.e., the student accesses the course materials at any time). Some instructors use the self-paced format and believe that it's in the best interest of the students if they can set their own pace for learning, based on their own time commitments and personal obligations. However, others believe that allowing students to self-pace increases the opportunity for procrastination (Glick & Semb, 1978), and if the instructor does not help pace the students, fewer will succeed in the course. I subscribe to the latter belief and therefore find selective release to be an invaluable tool. Through selective release, I am able to coordinate the release of my materials so that they emerge in a systematic, precise, and organized manner. Moreover, I can plan this release of materials before the class has even started; as such, it is a tool that is appreciated by both the extremely well organized and the extremely forgetful.
Let me give an example of a situation for which I find selective release useful: online assessments. When I am preparing the course in the CMS prior to the start of the semester, I coordinate the assessments so that they are released (i.e., they "pop up" on the home page) according to the dates signified on the syllabus. Then, I coordinate the learning content modules so that Unit 1 is displayed on the home page, but subsequent units are released at the same time as the assessment for the preceding unit. Finally, I write two announcements, one sent the week before the exam stating that the exam is the next week, and one sent after the exam is released to remind students of the exam deadline. By coordinating the release of material in this manner, students are able to view only the information that I think is relevant, and changes to the home page are obvious cues to new content, activities, or assessments. Moreover, the course is dynamic, and I impress upon the students that I am present and available. Also, by organizing these release dates before the semester has begun, I never forget to release an exam!

**Ok, So What Next?**

As I've shown, there are some CMS tools that both FTF and online instructors could use with relative ease to enhance their teaching and course administration, such as e-mail, announcements, and the grade book. Others, like content delivery tools, selective release, and student tracking, are much more likely to be used in online courses than in FTF courses. Meanwhile others, like the discussion board, can serve to enhance instruction in both FTF and online courses. The most appropriate tools to use in any given course depend upon the course content and the instructor's pedagogical approach.

Once instructors have decided which tools seem to be most appropriate for their CMS courses, their next step should be to implement those tools and measure their effectiveness. Some of the recent online pedagogical literature examines the effectiveness of CMS instructional methods and tools. There are also online resources, such as Quality Matters (www.qmprogram.org), that offer information (in the form of training and a rubric) to instructors hoping to design quality online courses. These literature and Web resources can be helpful in a general sense, but specific information about the effectiveness of any CMS tool or pedagogy can be obtained only when instructors evaluate their own courses in a systematic manner.
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Instructors must assess their courses and instructional strategies for several reasons. First, just as PowerPoint might be an extremely effective method of FTF content delivery for one instructor and an extremely poor method of delivery for another, individual instructor variability may increase or decrease a tool’s effectiveness in any CMS-delivered course. Second, course content is likely to vary at least minimally, and often significantly, from course to course. Even two instructors teaching the same course—child development, for example—might employ two completely different instructional methods. Whereas one instructor might have students rear a virtual child and complete various assignments related to this experience, another might have students debate theoretical perspectives on development through a series of discussion board posts. These activities are likely to correspond to the instructional approaches of the different instructors, and particular CMS tools might support one approach better than the other (see Hardin, 2007).

Moreover, in light of the emphasis on formative feedback to increase instructor effectiveness (see, for example, Wininger & Norman, 2005), every instructor should be engaging in systematic assessment of his or her classroom practices, whether that classroom exists in the FTF or CMS environment. For example, instructors could measure achievement outcomes in different versions of the same course that utilize different CMS tools. They could also administer surveys to gauge students’ satisfaction, sense of community, and perceptions of learning. Or, they could have their course reviewed by a peer as part of a formative assessment process. Regardless of the method of assessment, instructors should be mindful that are many ways to gain feedback on the quality of a course and that measures of student learning and achievement are integral to formative assessment.

In sum, when one considers the differences between FTF and online classes, and the different ways in which CMS can be used to support FTF and online instruction methods, it is likely that there is no single approach that will work best in all environments. However, by starting with my “bare-bones” approach, progressing to include more tools and strategies, and continually assessing the effectiveness of those tools and strategies, instructors can learn what CMS tools are available and useful to them, how to best address the learning needs of their students, and which tools and approaches work best in their own CMS-delivered courses.
**References**


STUDENTS’ FEELINGS OF AND DESIRE FOR SENSE OF COMMUNITY IN FACE-TO-FACE AND ONLINE COURSES

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Indiana University-Purdue University Fort Wayne

In this study, face-to-face (FTF) and online students’ \( N = 198 \) feelings of and desire for sense of community (SOC) in their courses were compared. In support of previous research, FTF students felt more SOC than online students. However, overall, relatively few students (FTF or online) expressed desire for SOC. Additionally, regression analyses revealed that different sets of student characteristics predict FTF and online students’ connectedness and desire for more SOC. Results are discussed with regard to the recommendation that SOC should be fostered in FTF and online classrooms, and future directions for research are presented.

INTRODUCTION

The landscape of higher education has changed significantly in the last decade in terms of the way in which courses are delivered (Lewis, Alexander, & Farris, 1997; Parsad & Lewis, 2008; Wirt et al., 2004). Surveys from the National Center for Education Statistics show that postsecondary institutions are now offering more distance education courses, including courses that are online, hybrid/blended (in which part of the content is delivered online), and other types of distance courses (Parsad & Lewis, 2008). With regard to online courses specifically, Allen and Seaman (2007) found that the percentage of total university enrollment that was accounted for by online courses rose from 9.7% to 19.8% in just 5 years (2002 to 2005), and in fall, 2006, nearly 20% of university students were enrolled in an online course. Considering the ways in which online courses provide convenience for students and administrators in terms of flexibility of scheduling and greater access to courses (Parsad & Lewis, 2008), the increasing demand for them is not terribly surprising. However, the rising popularity and availability of online education has brought about concerns of the quality of online courses, specifically as it relates to student learning and
retention (e.g., Rovai, 2002c). Meta-analyses of the effectiveness of distance education courses, which include analyses of online courses, have shown that student learning is equivalent to learning in face-to-face (FTF) courses (e.g., Bekele & Menchaca, 2008; Bernard et al., 2004; Tallent-Runnels et al., 2006; Zhao, Lei, Yan, Lai, & Tan, 2005). However, a more recent study by Karatas and Simsek (2009) revealed that students in online courses had significantly lower levels of learning and permanency of learned information than their FTF counterparts. Moreover, much of the empirical research to date has shown that retention in online courses is significantly lower than that of face-to-face courses (Carr, 2000; Diaz, 2000; Frydenberg, 2007). Both of these findings are cause for concern for administrators and educators.

**SENSE OF COMMUNITY**

One of the variables that has been explored as a potential mediator in the retention of students in distance (including online) education is sense of community (e.g., Carr, 2000; Rovai, 2002a; Rovai & Wighting, 2005). Although there seems to be little debate that sense of community is a positive, if not necessary, component of distance education courses (e.g., Palloff & Pratt, 1999; Roberson & Klotz, 2002; Rovai, 2002a), “community” has not been defined consistently throughout the literature. For example, Etzioni and Etzioni (1999) defined community as having two components: (1) a “web” of relationships between individuals and (2) a commitment to common meanings and values. Meanwhile, Rovai defined “classroom community” as the “spirit, trust, interaction, and commonality of expectation and goals, in this case, learning” (p. 4) that occurs within a classroom environment, either virtual or physical (Rovai, 2002a). Included in this definition are: (1) social community, or connectedness to the group (e.g., the instructor and fellow students) and (2) learning community, or common norms and values and satisfaction of learning goals (Rovai, Wighting, & Lucking, 2004). Clearly, there are similarities in the definitions; they both include an element of interaction, which may translate into either relationships or connectedness depending on the definition cited, and they both also include a sense of shared values or goals. However, Rovai’s definition is more useful from an empirical standpoint because he also developed a widely used scale of classroom community (the Classroom Community Scale—CCS) that distinguishes between his two dimensions of community (connectedness and learning) and is both reliable and valid (Rovai, 2002c). Rovai also expanded upon his definition of community by delineating a number of factors that appear to contribute to classroom community (Rovai, 2002a). These factors include, but are not limited to, social presence, or the individual’s (e.g., teacher’s or student’s) ability to contribute, socially or emotionally, to the group (Rourke, Anderson, Garrison, & Archer, 2001), and characteristics of the learner (e.g., dependent or self-directed; Grow, 1991). Thus, community, even when defined by a single researcher (in this case, Rovai), is a multifaceted concept, related to a number of classroom, teacher, and student factors.

The concept of community is not new. A learning environment that fosters interaction and social learning has been deemed an essential feature of the higher education experience for over 20 years—well before the advent of online courses (see, for example, Chickering & Gamson’s “Seven Principles of Good Practice in Undergraduate Education,” 1987). It is therefore not surprising that these same pedagogical practices (e.g., activities that foster interactivity and social learning) have also been recommended for the online classroom (e.g., Palloff & Pratt, 1999; Roberson & Klotz, 2002; Rovai, 2002a). However, the online classroom appears to present different challenges to instructors than the face-to-face classroom (Berge, 2008); one of these challenges is the lack of physical presence (Angeli, Valanides, & Bonk, 2003). Research has suggested that a lack of physical presence may
cause or exacerbate online students’ feelings of being isolated and disconnected from their instructors, their classmates, and their school (Carr, 2000; Rovai, 2002a). In turn, these feelings of isolation have been associated with lower levels of retention (Carr, 2000; Rovai, 2002a; Rovai & Wighting, 2005; Tyler-Smith, 2006). On the contrary, when online students are given the opportunity to form connections with the classroom community (including the instructor and other students) and SOC is present within a learning environment, students are more satisfied and report higher levels of learning (Hsieh Chang & Smith, 2008; LaPointe & Gunawardena, 2004; Liu, Magjuka, Bonk, & Lee, 2007; Oufts, 2006; Rovai, 2002a; Swan, 2002; Tsai et al., 2008). Students’ Perceptions of and Desires for SOC

Empirical studies that have examined students’ perceived SOC have shown that there is sometimes great variability in the amount of SOC that students report, even within the same classroom (Brown, 2001; Drouin, 2008; Graff, 2003; Liu et al., 2007; Rovai, 2001). One of the individual characteristics that appears to relate to these differences in perceived SOC is gender. Researchers have found that women usually feel a stronger sense of community than do males, specifically on the dimension of interaction or connectedness with classmates (Graff, 2003; Rovai, 2001; Rovai, 2002c). Additionally, educational maturity appears to have some effect on students’ perceived SOC. For example, Rovai, Wighting, and Liu (2005) found that graduate students reported stronger connectedness to their classmates than undergraduate students.

Some researchers have also reported differences in the amount of SOC reported by FTF and online students (Rovai, 2002b; Rovai et al., 2005; Wighting et al., 2008). However, Shea, Li, and Pickett (2006), found that online and FTF students reported similar levels of connectedness, which, according to Rovai (2002c), is one dimension of community. This discordant finding is notable, especially because Shea and colleagues used the same scale as Rovai (2002b) to measure SOC (Sense of Classroom Community Index; Rovai, 2002b), but it is likely attributable to the different samples used in the studies (students or instructors). Another discrepant finding comes from more recent study by Karatas and Simsek (2009). In their sample of Turkish undergraduates, online and FTF students reported similar levels of interaction with fellow classmates and the instructor (two variables that might contribute to perceived SOC) and overall satisfaction with the course. Interestingly, these authors also found that the FTF students learned more (according to pretest–posttest results) than did the online students, which is notable when one considers that FTF and online students reported comparable levels of learning in the other studies (Rovai, 2002b; Rovai et al., 2005; Shea, Li, & Pickett, 2006; Wighting et al., 2008). These discrepant findings highlight the need for further research examining the differences between FTF and online students in their perceived connectedness with classmates.

The finding that there are differences between FTF and online students’ perceived SOC has prompted research into the characteristics (e.g., demographic characteristics, learning styles, and preferences for interactivity) that might contribute to these differences (e.g., Stevens & Switzer, 2006; Qureshi, Morton, & Antosz, 2002; Wighting et al., 2008). Researchers have found that students who take online classes are more mature and experienced (with computers and previous online courses) than their FTF counterparts (Qureshi et al., 2002). Online students are also significantly more likely to be intrinsically motivated (Wighting et al., 2008) (i.e., motivated by personal desires or satisfactions rather than external consequences; Ryan & Deci, 2000), and
typically prefer a less-controlled, more autonomous class structure where they are able to work independently (Cicco, 2007; Stevens & Switzer, 2006; Wighting et al., 2008). In fact, this preference for independence may be one of the primary reasons why some students enroll in online courses. It is therefore possible that any of the student characteristics (e.g., maturity, motivation, or learning style) that differentiate FTF from online learners could also contribute to individual differences in students’ perceived SOC. However, in a study by Shea and colleagues (2006), none of the student characteristics they examined (e.g., age, gender, employment status, reason for taking online courses) contributed to differences in students’ feelings of SOC. Thus, there is no known empirical evidence that any demographic characteristics contribute significantly to variance in students’ perceived SOC. Clearly, this is an area in need of greater empirical attention.

Although a fair amount of research has examined (1) students’ perceived SOC, (2) the relationship between perceived SOC, achievement, and satisfaction, and (3) the individual characteristics that might contribute to differences in perceived SOC, relatively little research has focused on students’ desire for SOC. Moreover, while higher levels of SOC in FTF and online classrooms appear to be related to higher levels of learning and satisfaction overall (Hsieh Chang & Smith, 2008; LaPointe & Gunawardena, 2004; Liu et al., 2007; Ouzts, 2006; Rovai, 2002a; Swan, 2002; Tsai et al., 2008), there is no evidence that SOC in a FTF or online classroom is desirable for all students. In fact, recent research has shown that while some students want to feel SOC in their courses, some students do not desire SOC or a social connection with classmates (Brown, 2001; Cameron, Morgan, Williams, & Kostelecky, 2009; Drouin, 2008; Ke & Carr-Chellman, 2006; Liu et al., 2007). This finding may have several important implications. First, because one of the goals of some instructors is to create a feeling of classroom community (to increase student satisfaction and retention), it is important to determine whether students actually want to feel SOC in their courses and whether this is different for FTF and online students. Second, comparing students who do not want SOC in their courses with students who do and discerning the characteristics that account for the differences in desire may help educators adjust their teaching practices to reach and teach each group of students more effectively.

**Plan of Study**

Educators and researchers recommend that instructors create classroom environments that foster SOC (e.g., Palloff & Pratt, 1999; Roberston & Klotz, 2002; Rovai, 2002a, 2002c). However, recent research has suggested that although some students want SOC, not all students desire SOC in their courses (Brown, 2001; Drouin, 2008; Liu et al., 2007). Therefore, in this study, we sought to answer two questions related to students’ perceptions of and desire for SOC:

1. What percentage of students (FTF and online) desire SOC in their courses?
2. What factors contribute to students’ perceived SOC and desire for more SOC in the course?

In order to make meaningful statistical comparisons of students’ SOC, we felt that it was imperative that the cohort of students was pooled from classes where there was a high degree of (student-reported) organization (see also Drouin, 2008). We felt this necessary because students’ perceptions of SOC and their overall satisfaction with the course appear to be strongly related to how well organized the course is (Shea et al., 2006; Stein, Wanstree, Calvin, Overtoom, & Wheeaton, 2005). Moreover, in courses where there are course delivery or design issues, students may never have the opportunity to develop SOC and/or evaluations of SOC may be confounded by their negative feelings about the course overall (e.g., Ouzts, 2006; Swan, 2000). There-
fore, we consider it an essential design feature (in ours and other studies) that student ratings of the courses included in the analyses were high for organization.

**METHOD**

**Sample**

Students in seven online sections ($n = 119$) and two FTF sections ($n = 79$) of two instructors’ undergraduate psychology courses at a medium-sized midwestern U.S. university participated in this study. This sample of students was selected because they participated in sections of courses that were taken by students who were not necessarily psychology majors and taught by two instructors with experience teaching those courses online and FTF. Ninety-one of the students participating were enrolled in an introductory course, and 107 of the students participating were enrolled in a course higher than introductory level. Because educational maturity (in this case, course level) was a variable of interest, this factor was added to the regression analyses. The demographic characteristics of the students were typical of the enrollment at this university. With regard to age, 55% were under age 22; 29% were 23-30; 10% were 31-40; and 6% were 41 and older. Most were women (72%) and Caucasian (78%), with a small group of Black (4%), Hispanic (1%), Asian (2%) and Native American (2%) students. The mean grade for these courses was a C, with 30% of the students receiving As, 40% receiving Bs, 30% receiving Cs, 9% receiving Ds, and 3% receiving Fs. The online students were on average significantly older ($p < .05$) than the FTF students, but there were no significant differences for any of the other demographic variables.

According to student ratings, the courses were well organized. Most students in the nine sections agreed that the course organization was straightforward (89%), and they were aware of course expectations and approaching deadlines (88%). There were no significant differences between students’ appraisals of the organization of the course based on which instructor they had ($t[194] = 0.10, p = .917$) or whether the course was delivered online or FTF ($t[194] = 0.67, p = .501$).

**Procedure**

After completion of the final exam, students were asked to complete a two-part anonymous survey either online within Blackboard (online students) or in their classroom (FTF students) as part of the standard course evaluation. The first part of the survey contained demographic, communication, and course assessment questions, and the second part of the survey measured students’ SOC. The response rate for the survey was high; 199 of 244 (82%) of the enrolled students completed the two-part survey.

End of course survey (Part I). Students completed a 22-question survey containing demographic questions (e.g., age, gender, computer skills, and work hours) and questions about students’ perceived abilities to communicate with the instructor and fellow classmates, students’ perceptions of course organization, desire for sense of community in their courses, and desire for more sense of community in that specific course. For the course evaluation and student perception questions, students responded on a 5-point Likert scale (strongly disagree, disagree, undecided, agree, and strongly agree). Because a social connection with the group (which may include both fellow classmates and the instructor) appears to contribute to SOC (Rovai et al., 2004), several survey items were combined to form a communication variable (had opportunity to communicate with instructor, had opportunity to communicate with classmates, had adequate communication with instructor, and had opportunity to discuss/debate with classmates), which had a Cronbach’s alpha of .70.

SOC survey (Part II). Sense of community was assessed with the Classroom Community Scale (Rovai, 2002c). The scale comprised 20
self-report items measuring students’ perception of learning and connectedness in the classroom. Students were asked to respond to the questions using a 5-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree), and the maximum score on the whole battery was 80 (40 for each of the subscales). Higher scores indicated a stronger sense of classroom community (overall score) or learning and connectedness (subscale scores). Internal consistency for the overall scale using Cronbach’s alpha was .89. Internal consistency for the learning and connectedness subscales using Cronbach’s alpha was .83 and .85, respectively.

RESULTS

The first part of the results contains the summary statistics for the two groups (FTF and online) for the demographic, achievement, and SOC variables. Results from independent samples t tests that compared the group means on these variables are also shown. To answer the first research question, we analyzed the percentage of students who do and do not desire SOC in their courses (for both FTF and online students). Chi-square analyses were then used to determine if there were differences in proportions of students who do and do not desire SOC based on course delivery method (FTF or online). To answer the second research question, we examined the factors that contributed to students’ feelings of connectedness to their classmates (CCS subscale) and their desire for more SOC in their present course (experimental measure). Regression analyses were used to determine whether there were significant models for “connectedness” and “desire for more SOC” for FTF and online students and which factors were significant predictors in those models.

Summary Statistics

Summary statistics for the survey variables are displayed in Table 1. As shown, students enrolled in online classes were, on average, older, taking fewer credit hours, working more hours per week outside the home, and more experienced with computers. There were no differences in students’ satisfaction with the amount of SOC in their present course; both

<table>
<thead>
<tr>
<th>Variable</th>
<th>FTF</th>
<th>SD</th>
<th>Online</th>
<th>SD</th>
<th>t (196)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>2.05</td>
<td>0.73</td>
<td>2.90</td>
<td>0.95</td>
<td>7.26**</td>
</tr>
<tr>
<td>Skill with computers</td>
<td>3.97</td>
<td>1.10</td>
<td>4.27</td>
<td>0.76</td>
<td>2.20*</td>
</tr>
<tr>
<td>Credit hours</td>
<td>3.10</td>
<td>0.67</td>
<td>2.42</td>
<td>1.16</td>
<td>5.45**</td>
</tr>
<tr>
<td>Hours worked</td>
<td>16.35</td>
<td>12.11</td>
<td>24.47</td>
<td>16.53</td>
<td>4.09**</td>
</tr>
<tr>
<td>Grade</td>
<td>2.90</td>
<td>0.95</td>
<td>2.85</td>
<td>1.05</td>
<td>0.34</td>
</tr>
<tr>
<td>Learning</td>
<td>28.58</td>
<td>6.93</td>
<td>27.20</td>
<td>6.85</td>
<td>1.52</td>
</tr>
<tr>
<td>Connectedness</td>
<td>23.82</td>
<td>6.27</td>
<td>19.78</td>
<td>5.73</td>
<td>4.64**</td>
</tr>
<tr>
<td>Desire more SOC</td>
<td>3.06</td>
<td>0.97</td>
<td>2.99</td>
<td>0.90</td>
<td>0.53</td>
</tr>
<tr>
<td>Desire SOC/all courses</td>
<td>3.51</td>
<td>1.02</td>
<td>3.17</td>
<td>0.86</td>
<td>2.34*</td>
</tr>
</tbody>
</table>

Note. "Age: 1 = under 19, 2 = under 22, 3 = 23-30, 4 = 31-40, 5 = 41+. "Credit hours: 1 = 3-6, 2 = 7-9, 3 = 10-12, 4 = 13+. "Grade: 0 = F, 1 = D, 2 = C, 3 = B, 4 = A. "In this course.

*p < .05. **p < .01.
online and FTF students were content overall with the amount of SOC. However, students in FTF classes reported significantly more connectedness to their classmates than did students in the online classes.

**Desire for SOC in FTF and Online Courses**

With regard to desire for SOC, only about one-fourth of the students (both online and FTF) expressed a desire for more SOC in their present course, and there were no significant differences between groups. Meanwhile, 47% of the FTF students and 30% of the online students reported a desire for SOC in their courses (see Table 2). This was significantly different for FTF and online students; more FTF students than online students expressed a desire for SOC in their courses. Although significantly more FTF students desired SOC in their courses than did online students, relatively few students expressed desire for SOC in their courses (less than half and one third of the samples, respectively).

**Factors Contributing to Students’ Connectedness and Desire for More SOC in the Course**

A correlation matrix for all of the predictor variables used in the multiple regression analyses is displayed in Table 3.

Multiple regression analyses (using the enter method) revealed significant models for connectedness for both FTF and online students (see Table 4), accounting for 41% and 20% of the variance in these variables, respectively. For FTF students, communication within the course and course level (intro-level or upper-level) emerged as significant predictors in the model, accounting for 22% and 4%, respectively, of the variance in students’ feelings of connectedness. Students who felt they had more opportunities to communicate with classmates and the instructor and those in

**TABLE 2**

Number and Percentage of FTF and Online Students Who Want to Feel SOC in Their Courses

<table>
<thead>
<tr>
<th></th>
<th>FTF</th>
<th>Online</th>
<th>( \chi^2(2, N = 198) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not want SOC</td>
<td>8 (10%)</td>
<td>24 (20%)</td>
<td></td>
</tr>
<tr>
<td>Undecided</td>
<td>34 (43%)</td>
<td>59 (50%)</td>
<td>6.94*</td>
</tr>
<tr>
<td>Do want SOC</td>
<td>37 (47%)</td>
<td>36 (30%)</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 3**

Correlation Matrix for Predictor Variables for FTF and Online Students

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td></td>
<td>-.10</td>
<td>-.17</td>
<td>.07</td>
<td>.50**</td>
<td>.28*</td>
</tr>
<tr>
<td>2. Gender</td>
<td>.10</td>
<td></td>
<td>-.18</td>
<td>-.05</td>
<td>-.01</td>
<td>-.06</td>
</tr>
<tr>
<td>3. Credit hours</td>
<td>-.27**</td>
<td></td>
<td>-.04</td>
<td></td>
<td>.12</td>
<td>.05</td>
</tr>
<tr>
<td>4. Hours worked</td>
<td>.09</td>
<td>.02</td>
<td>-.07</td>
<td></td>
<td>.17</td>
<td></td>
</tr>
<tr>
<td>5. Course level</td>
<td>.00</td>
<td>.09</td>
<td>.08</td>
<td>.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Communication</td>
<td>.06</td>
<td>.07</td>
<td>-.14</td>
<td>.05</td>
<td>.02</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** FTF student correlations displayed above line. Online student correlations displayed below line. Gender: 0 = male and 1 = female.

\( *p < .05. **p < .01. \)
upper-level courses had a higher degree of connectedness. For online students, students’ communication within the course, credit hours taken, and hours worked emerged as significant predictors, accounting for 13%, 4%, and 2%, respectively, of the variance in students’ feelings of connectedness. Students who felt they had more opportunities to communicate with classmates and the instructor, those taking a greater number of credit hours, and those working more hours had a higher degree of connectedness. Multiple regression analyses (using the enter method) revealed no significant model for “desire for more SOC in the present course” for either the FTF or online students (see Table 5). However, for FTF students, the model just missed significance (15% of the variance was accounted for), and hours worked emerged as a significant predictor in the model (accounting for 7% of the variance in students’ desire for more SOC in the course). Students who worked more hours outside the home had a greater desire for more SOC in the course.

TABLE 4
Summary of Multiple Regression Analyses for Predicting “Connectedness” in FTF and Online Students

<table>
<thead>
<tr>
<th></th>
<th>FTF</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SEB</td>
</tr>
<tr>
<td>Age</td>
<td>0.15</td>
<td>0.96</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.64</td>
<td>1.27</td>
</tr>
<tr>
<td>Credit hours</td>
<td>0.71</td>
<td>0.89</td>
</tr>
<tr>
<td>Hours worked</td>
<td>-0.02</td>
<td>0.05</td>
</tr>
<tr>
<td>Course level</td>
<td>3.71</td>
<td>1.71</td>
</tr>
<tr>
<td>Communication</td>
<td>0.89</td>
<td>0.18</td>
</tr>
<tr>
<td>R²</td>
<td>.41</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>7.89**</td>
<td></td>
</tr>
</tbody>
</table>

Note: †p < .10. *p < .05. **p < .01.

TABLE 5
Summary of Multiple Regression Analyses for Predicting “Desire for More SOC in This Course” in FTF and Online Students

<table>
<thead>
<tr>
<th></th>
<th>FTF</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SEB</td>
</tr>
<tr>
<td>Age</td>
<td>-0.27</td>
<td>0.18</td>
</tr>
<tr>
<td>Gender</td>
<td>0.09</td>
<td>0.24</td>
</tr>
<tr>
<td>Credit hours</td>
<td>0.04</td>
<td>0.17</td>
</tr>
<tr>
<td>Hours worked</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Course level</td>
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<td>0.31</td>
</tr>
<tr>
<td>Communication</td>
<td>0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>R²</td>
<td>.15</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>2.08*</td>
<td></td>
</tr>
</tbody>
</table>

Note: †p < .10. *p < .05.
DISCUSSION

It has long been recommended that instructors create learning environments that foster SOC (e.g., Chickering & Gamson, 1987). These recommendations, which have been emphasized in both FTF and online classrooms, are based on the idea that when students feel SOC with their classmates, it may promote learning, satisfaction, and retention. Within the context of online education, a number of empirical studies have supported this idea (e.g., Liu et al., 2007; Ouots, 2006; Rovai, 2002a; Swan, 2002). However, there is also evidence that FTF students report stronger feelings of SOC than their online counterparts (Rovai, 2002b; Rovai et al., 2005; Wighting et al., 2008) and that not all students have a desire for SOC in their courses (Drouin, 2008; Ke & Carr-Chellman, 2006; Liu et al., 2007). Therefore, in this study, we studied samples of FTF and online students to determine what percentage of them had desire for SOC in their courses, whether this was significantly different for FTF and online students, and what factors were related to their desire for SOC. By doing so, we hoped to develop a more detailed picture of the desires and characteristics of today’s students (specifically with regard to SOC) in a continued effort to promote learning, satisfaction, and retention.

In terms of differences between FTF and online students, results from this study support findings from previous studies, namely that FTF online students are significantly different from online students with respect to some characteristics and very similar with respect to others. With regard to their differences, our results support previous findings (e.g., Qureshi et al., 2002) that online students are significantly different from FTF students in certain demographic characteristics. Online students in this sample were significantly older, were more skilled with computers, were taking fewer credit hours, and worked more hours outside the home. The results also support previous work (Rovai, 2002b; Rovai et al.; Wighting et al., 2008) that has shown that online students report lower levels of connectedness to classmates than do their FTF counterparts. With regard to their similarities, the present findings support previous work (e.g., Rovai, 2002b; Rovai et al., 2005; Shea et al., 2006; Wighting et al., 2008) that shows similar levels of reported learning in FTF and online students. In this sample, FTF and online students reported similar levels of learning on Rovai’s Classroom Community Scale (2002c) and also had statistically comparable course grades.

In addition to supporting previous research in the area of SOC (specifically SOC research that examines differences between FTF and online students) there were also some novel findings from this study that may add to the literature. Most notably, we found that fewer than half of the students in FTF classes (47%) and fewer than one third of the students in online classes (30%) expressed a desire for SOC in their courses. These findings were surprising; we found the percentages of students who expressed desire for SOC to be astonishingly low overall. The findings were also surprising considering the amount of theoretical and empirical support for the links between SOC and student satisfaction. However, considering the changing landscape of today’s undergraduate courses towards more distance education (Parsad & Lewis, 2008) and the suggestion made by recent researchers that not all students desire SOC in their courses (Drouin, 2008; Ke & Carr-Chellman, 2006; Liu et al., 2007), the findings were not entirely unexpected.

We also expected the findings that emerged with regard to differences between FTF and online students in their desire for SOC. In this sample, significantly more FTF students than online students expressed a desire for SOC. Perhaps as Quereshi and colleagues (2002) suggested, FTF students may have more social goals when they enroll in courses or there are certain personality characteristics (e.g., desire to work independently or low desire for social interaction) that would motivate students towards online courses (Ke & Carr-Chellman, 2006; Rabe-Hemp, Woolen, & Humiston,
In any case, there appears to be a significant difference between these students in their desire for SOC, and this difference should be considered when instructors create learning environments for these two types of students (Rabe-Hemp et al., 2009).

Our last set of findings is the least conclusive but provides us with the most avenues for future research. Using multiple regression analyses, we determined that there were some student characteristics that contribute to students’ feelings of connectedness and desire for more SOC in their courses. More specifically, we found that in FTF classes, the course level (i.e., intro- or upper-level) and the students’ perceived ability to communicate with fellow students and with the instructor contributed a significant amount of variance in students’ feelings of connectedness. Upper-level students and those with greater perceived ability to communicate had higher levels of connectedness. Meanwhile, only hours worked outside the home contributed a significant amount of variance in students’ desire for more SOC in the present course. Students who worked more hours outside the home desired more SOC. For the online students, perceived ability to communicate with fellow students and instructor was still a significant predictor in students’ connectedness, but two other variables, enrolled credit hours and hours worked outside the home, also provided unique variance in the model. Online students who worked more hours outside the home and those enrolled in more credit hours felt more connected to their classmates. There were no significant predictors for the online students for desire for more SOC in the present course.

Although it was no surprise that communication with instructor and fellow classmates emerged as a predictor of students’ connectedness, there were some unexpected findings. For example, a variable that one might assume would detract from connectedness to classmates or desire for SOC is working many hours outside the home. Students who work many hours outside the home might be perceived as too busy to prioritize a connection to classmates, or it might be assumed that they have their social needs met in another environment. However, in this sample, working more hours outside the home had a positive relationship with students’ SOC in both FTF and online classrooms: FTF students who worked more hours outside the home desired more SOC in the course, and online students who worked more hours outside the home felt more connected to classmates. This unexpected finding highlights the need for more work in this area to identify the student characteristics that may contribute to students’ feelings of and desire for SOC.

**LIMITATIONS AND CONCLUSION**

The limitations of this study rest in its subject pool; student data were gathered entirely from psychology courses at a traditional 4-year university. As shown in Finnegan, Morris, and Lee (2009) course discipline (i.e., social science, English and communication, or science, technology, and math) may affect students’ participation in online courses, and students’ participation (on discussion boards) is more strongly related to their achievement in the social sciences than it is for the other academic disciplines. This variation in the “value” of participation across disciplines suggests that there might also be differences in perceived SOC or desire for SOC across disciplines. Considering the behaviors of students in Finnegan et al.’s (2009) study, it might be expected that social science students might desire more participation and interaction with classmates than students in other disciplines. Thus, while we found that relatively few (30%) online students expressed a desire for SOC in their course, this may not be representative of students across disciplines. In fact, it could be that fewer students from other disciplines would express a desire for SOC in their courses. This is an empirical question that needs to be addressed in future studies. Additionally, it is not known whether the results found here can be generalized to students who
participate in other types of online programs (e.g., fully online degree programs or programs aimed exclusively at returning adults). Because of the different populations these programs target, it is reasonable to expect that students in these types of programs would have different educational motivations and desires. Again, this is an empirical question and an avenue for future research.

Overall, the results of this study suggest that relatively few undergraduate students taking psychology courses either FTF or online have desire for SOC in their courses. This is an interesting finding, and it doesn’t necessarily align with recommendations (e.g., Chickering & Gamson, 1987) to build social learning environments that are interactive and promote SOC. However, even though students don’t say that they want to feel SOC in their courses, it does not necessarily mean that they don’t want or value the types of interaction opportunities that foster SOC. In other words, perhaps our measure of “desire for SOC” was not capturing students’ desire for the interaction opportunities that promote SOC. As an example, a student might say that he doesn’t think SOC is very important to him in a course, but then he might cite “interactions with classmates” (an activity strongly related to SOC) as a reason why he attends class (which might have a positive relationship with his satisfaction, achievement, and retention). The relationship between these variables may be relatively complex. Therefore, as a direction for future research, we will be exploring this desire for SOC in more detail by creating a scale (much like Rovai’s Classroom Community Scale) that will measure students’ desires for the interaction opportunities (e.g., class discussions with classmates, personal communication with instructor) that may be contributing to students’ perceived SOC. By doing so, we may be able to distinguish between what students say they want and what they actually want with regard to SOC in the classroom. We also hope to gather more information about the student cohort (using a more comprehensive measure of demographic, personality, and cognitive characteristics), so that we can conduct more detailed analyses of the characteristics that are related to students’ desire for SOC. As a result of this work, we hope to be able to provide more specific recommendations to educators for creating learning environments that best meet the needs of today’s students.

REFERENCES


Carr, S. (2000). As distance education comes of age, the challenge is keeping the students. The Chronicle of Higher Education. 46(23), A39-A41.


