THE RELATIONSHIP BETWEEN STUDENTS' PERCEIVED SENSE OF CONNECTEDNESS TO THE INSTRUCTOR AND SATISFACTION IN ONLINE COURSES

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While many researchers have sought to identify pedagogical strategies to create a sense of connectedness in online courses, few have investigated e-mail correspondence between student and instructor. The current study addressed this issue and found students' sense of connectedness to be strongly correlated to feedback on assignments, instructor interaction and support, e-mail communication, and overall satisfaction with the online learning experience. When personalized, frequent e-mail correspondence was examined, students who corresponded through such e-mails were more likely to report a perceived sense of connectedness with the instructor, and more likely to report satisfaction with the online course.

OVERVIEW

The question of how to increase student retention rates in online courses has been an issue addressed by many researchers. Given that universities across the United States and other countries are offering online/distance education courses in increasing numbers, and that the "demand for online learning has never been greater" (Gallien & Oomen-Early, 2008, p. 463), researchers have suggested that a sense of community or connectedness is important for students' successful completion (Reinhart, 2010) and overall satisfaction with an online course (Exter, Korkmaz, Harlin, & Bichelmeyer, 2009; Reinhart, 2010). According to Abedine, Daneshgar, and D'Ambra (2010), students in any classroom who feel a strong sense of community or connectedness are more likely to be successful and perceive satisfaction with the overall learning experience compared to those who feel separated from the community. A sense of community is at the heart of learning (Abedin et al., 2010).

Retention issues are of particular concern for universities supporting distance education

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programs. Reports of distance education programs indicate that the dropout rate is generally 10-20% higher in distance education than in traditional programs (Tyler-Smith, 2006). This high level of attrition comes at a high cost. "Failure to complete studies is recognized as a personal loss for the individual, an economic loss for the universities, and an intellectual loss for society" (Gomez, 2013, p. 13). Various reasons are cited in the literature for the increased noncompletion rates among students, from students' backgrounds, to available student support levels, to interaction and sense of community (Tyler-Smith, 2006), to student characteristics such as self-efficacy and self-regulatory skills (Gomez, 2013). Given the importance of retention among students enrolled in distance education programs, extensive research efforts have been used to improve completion rates. Numerous authors believe that retention in distance education programs can be improved when students experience a greater sense of community or connectedness with their peers and with faculty (Exter et al., 2009; Gallien & Oomen-Early, 2008; Glazer & Wanstreet, 2011; Reinhart, 2010; Shea, Swan, Li, & Pickett, 2005).

Gallien and Oomen-Early defined connectedness in their study of instructor feedback in online courses:

> Connectedness refers to a person's sense of belonging or presence, feelings of support, and level of communication/interaction with the instructor. Students who perceive a sense of connectedness with their instructor are likely to feel satisfied and perform well in their online courses. (2008, p. 468)

If students are satisfied, they are more likely to be successful (Puzziferro, 2008) and have higher achievement, increased learning transfer, increased academic self-esteem, and greater satisfaction with their online program (Glazer & Wanstreet, 2011). A strong sense of community helps reduce feelings of isolation and is beneficial in reducing student burnout (Shea et al., 2005). "On the other hand, disconnectedness may lead to difficulty with the course, failing grades, noncompletion, or withdrawal" (Glazer & Wanstreet, 2011, p. 56).

Empirical evidence suggests that the degree of satisfaction with an online course is strongly related to students' perceived connectedness or community. Primarily, the literature suggests that interactions around course content (feedback on assignments and instructor presence in discussion forums) tend to foster connectedness (Exter et al., 2009; Gallien & Oomen-Early, 2008; Glazer & Wanstreet, 2011; Gosmire, Morrison, & Van Osdel, 2009; Jackson, Jones, & Rodriquez, 2010; Maddix, 2013; Mayne & Wu, 2011; Palmer & Holt, 2009; Shea et al., 2005; Sheridan & Kelly, 2010). Others support the use of instructor communication with students outside of content discussions (Reinhart, 2010; Woods, 2002; Woods & Ebersole, 2003) to cultivate connectedness.

The benefits of fostering students' perceptions of connectedness have been well documented. Therefore, faculty who teach online should be able to take the same nurturing role with students as they would in face-to-face environments. They must provide faculty-to-student exchanges designed to build relationships and foster a sense of community (Woods, 2002) as they would in classrooms offered in person, so that students do not feel disconnected from their professor. Tobin (2004) argued that the most important variable in the online classroom is the instructor's level of interaction with students. A more detailed examination of instructor-student interaction follows to better understand its role in fostering students' perceptions of connectedness and in promoting students' overall satisfaction with an online course. In this review, the terms "connectedness" and "community" are used interchangeably.

Interactions Around Course Content

Faculty-student interactions related to course content have been shown to contribute to students' perceptions of connectedness. These interactions can be in the form of feedback on written assignments or instructor pres-

ence in online discussions. It has been suggested that feedback, or written comments on assignments and suggestions to improve online discussions, for many students is the key to overall satisfaction in an online course (Ladyshewsky, 2013). Formative feedback should be nonevaluative, supportive, timely, and specific to improve learning, according to Gosmire et al. (2009). Empirical evidence suggests that a high degree of faculty-to-student interaction about assignments is important to foster connectedness (Exter et al., 2009; Gallien & Oomen-Early, 2008; Glazer & Wanstreet, 2011; Gosmire et al., 2009; Jackson et al., 2010; Ladyshewsky, 2013; Maddix, 2013; Mayne & Wu, 2011; Shea et al., 2005; Woods, 2002; Woods & Ebersole, 2003).

Feedback on Assignments. A strong relationship between feedback on assignments and students' perceptions of connectedness has been revealed in several studies. For example, Exter et al. (2009) examined students' perceived level of community and the factors that contributed to that feeling. Students in distance education courses expressed their desire to be known by professors and to be provided with meaningful interactions with faculty about course assignments, as well as more opportunities to meet face to face or view teleconferencing (Exter et al., 2009). In another study, Glazer and Wanstreet (2011) found that 64% of their participants felt a degree of connectedness with faculty after receiving feedback that was assignment related. Their participants suggested that feedback on assignments or suggestions for improvement makes faculty seem more "personable" and leads to a sense of connectedness.

Gallien and Oomen-Early (2008) also linked the type of feedback provided by an instructor with student satisfaction and perceived connectedness to the instructor in their study. One group of students received collective feedback from the instructor that summarized overall class performance and ways to improve, while another group received more personalized, individual feedback. Students who received personalized feedback were more satisfied with the course and performed better academically than those who received only collective feedback, yet Gallien and Oomen-Early (2008) found no difference between the groups regarding perceived connectedness. Qualitatively, students in the study related their level of satisfaction to the availability of the instructor to respond to questions and concerns about the class (Gallien & Oomen-Early, 2008).

Gosmire et al. (2009) evaluated the use of synchronous video chats as an instructor feedback method, among other factors, and they found it helped to create an optimal learning environment for students and contributed to their overall satisfaction with the course. Ladyshewsky (2013) also argued that providing feedback is an important factor in student satisfaction. Instructor-to-student interaction was found to be the most significant variable influencing student satisfaction in Marks, Sibley, & Arbaugh (2005) as well. Feedback that helps direct students' learning efforts in an online environment, or comments about assignments and/or performance in the class is important, and feedback that is perceived as of high quality influences satisfaction scores (Ladyshewsky, 2013).

Instructor Presence. Teacher presence is also an important contributor to perceptions of connectedness in distance education courses. Teacher presence involves the instructor's interaction and communication style and the frequency of the instructor's input into the class discussions and communication, modeling online communication and interactions, and designing meaningful learning outcomes (Sheridan & Kelly, 2010). Sheridan and Kelly's (2010) research evaluated the role of teacher presence in online courses as efforts to promote students' sense of connectedness and the perceived contribution to a successful or satisfying learning experience. Two key forms of instructor presence that were most important to students in Sheridan and Kelly's research were clarity of expectations and timeliness of feedback on assignments and projects.

Faculty who clearly communicate expectations about assignments may have students who report greater satisfaction with the course. For example, Jackson et al. (2010) determined that faculty who create a positive learning environment by communicating expectations clearly, who are accessible and/or respond in a timely manner to student concerns, or who are available for consultation are associated with higher ratings of student satisfaction. In another study (Palmer & Holt, 2009) factors that were found to positively influence student satisfaction were primarily related to how confident students felt about their ability to learn online, having a clear understanding of the course requirements, and how well they thought there were performing in the course.

Online students in Shea et al.'s (2005) research reported a greater sense of community based on felt teacher presence. Their model of teacher presence included instructional design, facilitating discourse, and direction instruction components. Effective instructional design included setting the curriculum and designing methods of study; facilitating discourse included identifying areas of agreement and disagreement among student, acknowledging student contributions, and drawing in participants/prompting discussions; and directing instruction included presenting content and questions, summarizing discussions, and injecting knowledge from diverse sources. Students who perceived a high level of teacher presence also reported a high sense of community (Shea et al., 2005). Results in Shea et al.'s discussion suggest that,

> effective instructional design and the skilled facilitation of discourse have a large positive effect on not only student satisfaction but students' sense of being connected with and supported by their instructor and fellow students in online environments. (2005, p. 72)

Mayne and Wu (2011) also investigated the relationship between instructor-initiated social presence techniques and satisfaction with online courses. The authors suggested that creating an environment to increase social presence in online classes is a way to increase interactions between students and instructors, dispels feelings of isolation, and significantly increases cognitive learning (Mayne & Wu, 2011). They contend that the perceived presence of instructors is more influential in student satisfaction than the perceived presence of peers. Notably, the basic strategy employed by professor in their investigation included a personal e-mail message from the instructor with a request for "get to know you" information, clearly communicated expectations and grading criteria, and guidelines for navigating the course, in addition to timely, personalized feedback on assignments (Mayne & Wu, 2011). Social presence, or maintaining frequent presence in online discussion, was also an important factor in the Maddix investigation (2013). When social presence is increased, it enhances community, and student satisfaction is higher when the faculty member is active and present in the online course, Maddix stressed. "When the professor is absent from the online dialogue, it creates anxiety for students and inhibits their learning" (Maddix, 2013, p. 143).

It has been established that certain teacher behaviors are critical to learning and fostering perceptions of connectedness. Such behaviors include effective feedback on assignments and suggestions for improvement (Exter et al., 2009; Gallien & Oomen-Early, 2008; Glazer & Wanstreet, 2011; Gosmire et al., 2009; Ladyshewsky, 2013;), and perceived levels of instructor presence (Jackson et al., 2010; Mayne & Wu, 2011; Shea et al., 2005; Sheridan & Kelly, 2010). From the foregoing discussion, one can hypothesize an important relationship between instructor behaviors and the establishment of connectedness. Relatively little is known, however, about how instructors can best interact with students in a more personal way to facilitate the important sense of connectedness that is crucial in online environments. Given the myriad benefits associated with a strong sense of community and connectedness, it may be productive to determine additional instructor behaviors that support the

development of instructor-student connections in distance education courses.

Interactions Outside of Course Content

Some researchers have evaluated other methods for developing community, beyond feedback on assignments or suggestions for improvement. In one study, for example, Woods and Ebersole (2003) sought to foster a sense of community among online learners by creating non-subject-matter-specific discussion boards such as an autobiography forum, a devotional forum, a prayer requests gathering place, and other such areas for student interaction outside the general topic discussion board. The researchers found the most frequently used area to be the autobiography forum, followed by the prayer request forum (Woods & Ebersole, 2003). It should be noted that their prayer request forum was public to all other members of the class.

Reinhart (2010) also investigated the role that various forms of communication between the university and its students plays in fostering students' sense of community. Reinhart's study included "downward messages" from the university through e-mail and the program's website. Results revealed that the frequency with which students view the program website is positively correlated with students' perceived sense of community, but that regular reading of university e-mail was not correlated (Reinhart, 2010). Their study suggested that it is not e-mail communication that helps promote a sense of connectedness.

Another way to facilitate a greater sense of connectedness between student and professor might be to utilize a more private conversation through student-professor e-mails. Private e-mails were the subject of Wood's (2002) investigation, where the author sent personal e-mail messages of two to three sentences that included general words of encouragement or support, and they included background on course assignments and due dates. In general, research seems to support more frequent faculty-student interactions to build strong relationships and foster a sense of community and to contribute to more favorable perceptions of satisfaction with the overall learning experience (Woods, 2002). Woods' investigation, however, reported little effect of the number of e-mails sent to students' perceptions of their relationship to the professor, their perceived sense of online community, or their degree of satisfaction with the overall learning experience. More frequent delivery in instructor-initiated e-mails did not result in higher levels of satisfaction with the course. It is worth considering that the e-mails were of such brevity (e.g., two to three sentences per e-mail) and they were primarily about upcoming assignments or due dates.

In sum, the research related to online course satisfaction has centered on creating students' perceptions of connectedness. Knowledge of how to create this sense of connectedness has been reported in several studies, suggesting that instructor feedback on assignments and interactions related to course content can be beneficial, and interactions outside academic content are important as well. More specific research on this topic that can inform pedagogical practice is needed, however.

Research Questions

Given the importance of creating a sense of connectedness in online environments, and the limited literature related to strategies of facilitating more personal relationships with students outside course content, further research is necessary. Therefore, we investigated a more unique form of individual e-mail exchanges with students—exchanges that were more in-depth and more personalized. Other related studies investigating the effects of instructor feedback focused on particular assignments (Gallien & Oomen-Early, 2008), or were short, general words of support (Woods, 2002), or were posted in a public forum visible to all students in the course (Woods & Ebersole, 2003), and it appears that further investigation is warranted. With this in mind, the current study focused on how per-

sonalized, in-depth, private e-mail communications impacted students' perceptions of connectedness with the instructor and overall satisfaction with the course.

In this study, four related questions were explored:

1. In our sample, was there a relationship between perceived connectedness to the instructor and overall satisfaction with the course?
2. Was perceived connectedness associated with instructor interactions around course content, such as feedback on assignments and presence in online discussions?
3. Was perceived connectedness associated with instructor interactions outside of course content?
4. Between two groups (those who interacted with the instructor via personalized e-mails throughout the course and those who did not), was there a significant difference in measures of perceived connectedness and overall satisfaction with the course?

The fourth question is posed to inform pedagogical practice, and to address the larger question of, "Do students who interact with professor in a more personalized manner through e-mail, whether related to course content or outside course content, feel more connected to the instructor?" If this particular practice promotes a greater sense of connectedness, presumably students would feel more satisfied with their online learning experience and ultimately maintain greater retention rates than students who are less satisfied with their online courses.

METHOD

Sample

Participants who comprised the convenience sample were undergraduate and graduate students enrolled in six different teacher preparation courses at a private university in Southern California over three semesters. In the first semester, 48 students completed the survey (the sample included 18 students from one section of an introductory Issues in Special Education course, 11 students from a second section of Issues in Special Education, 13 students from a Behavior and Classroom Management for Students with Special Needs course, and 7 students from an Assessment and Evaluation of Exceptional Learners course). The total number of students enrolled in the four courses that semester was 56. Forty-eight of the 56 students completed the survey, for a response rate of 86%.

In the following semester, following the initiation of personalized e-mail interactions, 29 more students from two classes completed the survey (the sample included 20 students from the Issues in Special Education course and 9 students from a Teaching Students with Mild Disabilities in Inclusive Settings course). The total number of students enrolled in the two courses that semester was 35. Twenty-nine of the 56 students completed the survey, for a response rate of 83%, roughly similar the response rate of the previous semester's group of students.

A total of 77 students comprised the final sample. The response rate was high for the online survey; 77 of the 91 students enrolled in the six courses (85%) completed the survey. Given that responses were completely anonymous, we could not track participants' grades in their respective courses, and therefore we could not determine whether relationships existed between connectedness, satisfaction, and academic achievement or retention.

Procedure

Near the end of each semester, all students in the six courses were notified that they had the option to participate in a research study. The participants were not informed of the research question but were informed that they could be part of a study evaluating students' general satisfaction with online courses. In all six courses, students were not required to par-

ticipate, and they were informed that their choice to participate would in no way impact their grade in the course. Students were provided a link to the survey, they were given the option to follow the link and complete the survey, and the instructor had no knowledge of which students chose the option, as they were completed anonymously.

Students in all six classes regularly received feedback on individual assignments upon completing of each assignment. Participants typically interacted with the their classmates each week in a discussion forum, and they completed one case study/application assignment each week as well, which was submitted to the instructor for private viewing. Each week the professor provided individual feedback to all students about the contents of the submitted assignments, to indicate areas of strength or areas where growth was needed. In the final semester, in addition to the regular feedback about assignments, the instructor also provided students with an opportunity to remain accountable for upcoming assignments and to submit prayer requests, and the professor responded privately to those e-mails within 24-48 hours of receipt.

Participants in the first two semesters, who did not correspondent through private e-mail with the professor regarding assignments and prayer requests, were categorized as Group 1. The students in the final semester, assigned to the "e-mail" group (Group 2), were given the opportunity to earn .5 extra credit points per week by submitting an e-mail to the professor. No matter how lengthy or brief the e-mail, any student who corresponded in this fashion received the .5 points per e-mail. In the e-mail, students were asked to look ahead to upcoming assignments and indicate to the professor what they were doing to prepare themselves to handle the class workload (i.e., what assignments were they were preparing for and how they were doing so). Students were also asked to submit a second paragraph sharing ways in which the professor could pray for them about any matter. It is worth mentioning that a reward was provided to Group 2 for participating in the e-mail correspondence assignment (.5 extra credit points per e-mail/week), and that no reward was provided to Group 1. Given the similar response rates of both groups (Group 1, 86%; Group 2, 83%), it can be reasonably assumed that the extra incentive had little impact on response rate. In fact, the group with the highest response rate (Group 1, 86%) received no reward or opportunity to earn extra credit for e-mailing.

Following is an example of a typical e-mail correspondence between student and faculty:

> *Student to teacher request*: I want to start this e-mail saying thank you for always keeping me in your prayers throughout the semester. I will be completing the reading for this section tomorrow (later today), and then hopefully completing the Case Study on Thursday along with finishing writing the paper. I hope to read for module 12 this weekend and to the necessary post for it. I will then be planning on doing the case study at the beginning of the week if all goes as planned. I am deciding on what topic I wish to research for the Disability Awareness paper. Please continue to pray for my health, as I feel like I am catching that flu bug going around. Thank you.
>
> *Teacher to student response*: You are very welcome for the prayers. I should be thanking you for trusting me with your prayer requests! Many students are ill this semester, and I am praying that your ill health would not prohibit you from completing assignments in all of your classes. I am continuing to pray for your health, and that you are able to finish the semester strong.

Another student, who typically wrote lengthy e-mails to share some difficulties she was experiencing in her personal life wrote:

Your care and concern for your students shines—even through "Cyberland." :o} Thank you! Life feels so much better these days knowing you are praying for me. I am so glad that I am registered for this course. Everyday, I learn things so relevant to my life, and I say to myself, "Oh, THAT'S how that works, what

that means, or what they do." Furthermore, it's all SO RELEVANT in the life of my family.

One other student wrote:

> Thank you for your interest in your students! I am thrilled to interact with you.… I know it will be a lot of extra time for you so I am praying for you! I know you will be blessed as you "shepherd your flock" of students. I *adore* this assignment.

Instrument

At the completion of the course, students were asked to participate in a survey designed to assess their level of satisfaction and perceived sense of connectedness with the instructor. There were seven questions related to this content. One question asked about the type of feedback and related support received, another asked about the timeliness/frequency of feedback, another asked about perceived level of support from the instructor, the fourth asked about the amount of time the instructor interacted with students, the fifth asked about perceived connectedness with the instructor, the sixth question (asked only of Group 2) asked students to indicate how e-mail helped them feel more connected to the instructor, and the final question assessed overall satisfaction with the online learning experience. Table 1 provides question content and possible response choices for each question. Chronbach's alpha for this survey was .879, which far exceeds the .70 acceptable cutoff for social science research (Nunnally, 1978).

To address Research Questions 1-3, associations between sense of connectedness, course satisfaction, and instructor interactions were assessed through Pearson correlations. To address question 4, the final survey data were analyzed using *t* tests for independent samples to compare mean scores on student satisfaction and perceived connectedness to the instructor between the two treatment groups. The *t* test for independent samples was the most appropriate statistical test to use, given there were only two treatment groups and the participants were tested only once on each of the variables.

RESULTS

A Pearson correlation matrix was constructed to examine relationship between students' perceived connectedness, course satisfaction, instructor interactions around course content, and instructor interactions outside of course content variables. See Table 2. Students' sense of connectedness was very strongly related to

TABLE 1
Instrument Questions and Possible Responses

1. The type of feedback on assignments and the support I received from the instructor was: (extremely vague/extremely impersonal; vague/impersonal; personalized and helpful; extremely personalized and very helpful)
2. The timeliness/frequency of feedback offered by the instructor was: (extremely slow; slow; prompt; extremely prompt)
3. Overall, I feel the level of support offered by the instructor was: (extremely low; low; high; extremely high)
4. Overall, I feel the time the instructor spent interacting with students was: (extremely infrequent; infrequent; frequent; extremely frequent)
5. My sense of connectedness with the instructor was: (I felt extremely isolated; I felt somewhat isolated; I felt connected; I felt extremely connected)
6. The degree to which email correspondence (e.g., prayer requests and responses) helped create a sense of connectedness with the professor was: (e-mails did nothing to help me feel connected; e-mails did little to help me feel connected; e-mails helped me feel somewhat connected; e-mails greatly helped enhance my feeling of connectedness)
7. Overall, I was satisfied with my online learning experience: (not at all true for me; not true for me; true for me; very true for me)

TABLE 2
Correlations Between Students' Perceived Sense of Connectedness and Feedback, Support, Interactions, E-mail, and Satisfaction

	Type Fdbk.	*Freq. Fdbk.*	*Support*	*Interact*	*Connected*	*E-mail*	*Satisfaction*
Type Fdbk.							
Freq. Fdbk.	.389**						
Support	.602**	.523**					
Interact	.457**	.519**	.590**				
Connected	.542**	.328**	.606**	.700**			
E-mail	.359	.413*	.649**	.619**	.613**		
Satisfaction	.409**	.182	.340**	.439**	.575**	.434*	

Notes: $N = 77$. *$p < .05$. **$p < .01$.
Type Fdbk. = The type of feedback on assignments and the support I received from the instructor was:
Freq. Fdbk. = The timeliness/frequency of feedback offered by the instructor was:
Support = Overall, I feel the level of support offered by the instructor was:
Interact = Overall, I feel the time the instructor spent interacting with students was:
Connect = The degree to which email correspondence (e.g., prayer requests and responses) helped create a sense of connectedness with the professor was:
E-mail = E-mail correspondence helped me feel connected to the instructor.
Satisfaction = Overall, I was satisfied with my online learning experience.

the time the instructor spent interacting with students, and strongly related to type of feedback on assignments and perceived level of instructor support. Strong relationships also existed between perceived instructor support and type of feedback and timeliness of feedback. E-mail correspondence was strongly associated with timeliness and frequency of feedback, perceived level of instructor support, the time the instructor spent interacting with students, and perceived connectedness with the instructor. Overall satisfaction was strongly associated with type of feedback on assignments, the time the instructor spent interacting with students, perceived connectedness with the instructor, and private e-mail correspondence. Other strong relationships were revealed and presented in Table 2.

Research Question 1 asked whether there was a relationship between perceived connectedness to the instructor and overall satisfaction with the course, and results from our sample indicated a strong relationship between the two variables ($r = .575$, $p = .01$). To address Research Question 2, whether perceived connectedness was associated with instructor interactions around course content, results revealed very strong ($r = .700$, $p = .01$) to strong associations ($r = .619$, $p = .01$; $r = .542$, $p = .01$) between the variables. Research Question 3 asked whether perceived connectedness was associated with instructor interactions outside course content, and results demonstrated a strong relationship between the variables ($r = .613$, $p = .01$).

An independent-samples t test was conducted to compare students' sense of connectedness to the instructor and overall satisfaction with the course in no e-mail and e-mail conditions to address Research Question 4. A summary of statistical findings is as follows:

1. Students who corresponded with the instructor through e-mail prayer requests ($M = 3.03$, $SD = .73$) on average perceived greater connectedness with the instructor than students who did not correspond through e-mail prayer requests ($M = 2.64$, $SD = .63$). The test was significant, $t(75) = -2.45$, $p = 0.016$.

2. Students who corresponded with the instructor through e-mail prayer requests were more satisfied with the course overall (M = 3.27, SD = .59) than students who did not correspond through e-mail prayers (M = 3.10, SD = .63); however, differences were not statistically significant ($t(75) = -1.21$, $p = .232$).

DISCUSSION

With increased demand for online learning, scholars have investigated strategies for maintaining student retention rates. Much of the literature suggests that retention in distance education programs can be improved when students experience a greater sense of community or connectedness (Abedine et al., 2010; Exter et al., 2009; Gallien & Oomen-Early, 2008; Glazer & Wanstreet, 2011; Gosmire et al., 2009; Reinhart, 2010; Shea et al., 2005). This study focused on the association between connectedness and overall satisfaction with the online learning experience. More specifically, we sought to better understand whether private, personalized e-mail correspondence between students and faculty contributed to greater perceptions of connectedness and satisfaction.

In this study, we have attempted to investigate the relationship between students' sense of community and satisfaction with the online learning experience. Researchers have shown that when online learners interact with their instructor through a variety of means, they perceive a sense of connectedness to the professor and ultimately report greater satisfaction with the course (Exter et al., 2009; Gallien & Oomen-Early, 2008; Glazer & Wanstreet, 2011; Gosmire et al., 2009; Jackson et al., 2010; Ladyshewsky, 2013; Maddix, 2013; Mayne & Wu, 2011; Shea et al., 2005; Woods, 2002; Woods & Ebersole, 2003). Results of this study showed that students perceived sense of connectedness with the instructor was significantly related to their satisfaction with the course. A greater sense of connectedness was reported among students who reported satisfaction with the online learning experience. These findings support existing literature that encourages professors to create a sense of connectedness in their online courses.

Another purpose of this study was to understand the relationship between perceived connectedness and professor feedback on assignments, support offered by the instructor, and time the instructor spent interacting with students. We found that each of the variables was strongly associated with students' perceptions of connectedness. Students felt more connected to the instructor when she interacted with and supported students in online classes. Personalized e-mails between student and instructor were also shown to be an important contributor to students' perceptions of connectedness in this study. These findings suggest that instructors who regularly interact with their students, around course content or outside of course content, help to foster a sense of connectedness with their students in online environments.

Survey respondents who corresponded with the professor through private, personalized e-mails about course content and other more personal matters were more likely to report a sense of connectedness with the instructor, compared to students who did not communicate through e-mail with the professor. These results contradict Woods and Ebersole's (2003) research using public forum-style prayer requests, presumably because prayer requests in this study were more private in nature. These results also contrast to Reinhart's (2010) findings, where e-mails did not create a sense of connectedness. It should be noted that Reinhart's messages were of a more "downward" form of communication, whereas messages in the current study were more of a "horizontal" or "interactive" nature. Finally, the results of this study differ from Woods' (2002) investigation, in which instructor-initiated e-mails did not contribute to a perceived sense of community for students. Woods' e-mails were two to three sentences in length, focused exclusively on assignment details,

whereas this study frequently made use of very lengthy (three to five paragraphs) correspondence about assignments and prayer requests.

The preceding analyses were performed to address an important matter in distance education, which is how to foster a sense of connectedness among students. The findings suggest that professors who interact with their students more frequently contribute to students' perceptions of connectedness. Moreover, results demonstrate a significant relationship between perceived connectedness and overall satisfaction with the course.

Limitations and Pedagogical Implications

While the results of the present study largely support existing literature about online learning and the importance of facilitating perceptions of connectedness, there are several limitations to the generalization of these results. Data were provided by a convenience sample of participants. Also, all of the participants were from one private university, enrolled in a teacher preparation program, and may not be representative of the population of students enrolled in online courses. Future research should investigate potential differences between students in other programs and at other universities, public and private. Follow-up research with a larger sample size would also be beneficial for examining the connection between student-professor e-mail correspondence and perceived connectedness. Additional studies should also investigate the time investment for the professor in generating and responding to such a large number of e-mails each week, while also maintaining a full course load.

This study supports the need for continued research in online learning and serves as a starting point for future studies investigating how student-instructor interaction influences perceived connectedness with the instructor and satisfaction in the online classroom. With continued research, the body of knowledge pertaining to online education and the importance of faculty-student connectedness will grow, as will our understanding of what constitutes quality online teaching and a strategies that can best meet the needs of our students

The results of this study suggest that instructors may be able to foster a sense of connectedness by maintaining frequent interactions via e-mail with students. In this case, the instructor-student e-mail interactions entailed student-generated accountability with respect to pending assignments and prayer requests, and professor responses that were personalized and focused on the specific prayer request. In most cases, responses to students were generated within 24-48 hours after initial receipt of the request. Professors may perceive this attempt at fostering connectedness as time prohibitive. At the completion of the semester, one student who had communicated regularly through lengthy prayer requests sharing her family struggles, experienced a traumatic event of violence in her home. This student called the professor, whom she had never met face to face, just to talk to "someone who I know cares deeply for me." Interactive relationships with online students do, in fact, take a great deal of time, but one can reason that the positive benefits outweigh the perceived time commitments.

If learners in distance education courses benefit from a sense of connectedness to faculty, universities would serve their students well by supporting instructor activities that foster such connectedness. The present research suggests that efforts to increase perceived connectedness might be best directed towards focused, personalized, private e-mail correspondence. Designers of online courses may consider the importance of students' satisfaction with the online learning experience and create interaction opportunities that meet their students' needs for connectedness.

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