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College instructors have long investigated ways to help students reduce the communication anxiety they experience, especially in the public speaking classroom. Several treatment approaches (e.g., systematic desensitization, cognitive restructuring, visualization, and Rhetoritherapy) have been developed and tested in an effort to help students alleviate communication apprehension (CA), "the fear or anxiety associated with real or anticipated communication with another person or persons" (McCroskey, 1977, p. 78). Although time consuming, these treatments can potentially help those who experience overall CA (trait-like CA in a variety of contexts), as well as those who experience CA only in specific contexts such as public speaking, meetings, group discussions, or interpersonal conversations (Richmond & McCroskey, 1998).

Some communication educators have recommended increasing familiarity, acquaintance level, and collaboration among students in an effort to help moderate

speech anxiety in the classroom (Ayres, 1990; Daly & Buss, 1984). It would seem that increasing these variables could help diminish CA because they foster a supportive climate in the classroom in which students feel more relaxed and comfortable about communicating with one another. However, few, if any, academic studies have investigated the relationship between CA and a connected classroom climate, defined "as student-to-student perceptions of a supportive and cooperative communication environment in the classroom" (Dwyer, Bingham, Carlson, Prisbell, Cruz, & Fus, 2004, p. 5). If a relationship exists, then classroom climate may be investigated further and encouraged as a classroom intervention for moderating CA. Therefore, the purpose of this investigation is to examine the relationship between perceptions of a connected classroom climate and CA.

LITERATURE REVIEW

Communication Apprehension and Treatment Approaches

Research involving CA and academic achievement has led communication researchers to concur that high CA: 1) can be a serious learning disability (Scott, Wheeless, Yates, & Randolph, 1977), 2) yields negative academic consequences including higher college attrition rates (Ericson & Gardner, 1992; Powers & Smythe, 1980; Richmond, 1998; Rubin Graham, & Mignerey, 1990), and 3) has a statistically significant negative correlation with cognitive performance (Bourhis & Allen, 1992).

Several treatment approaches have emerged to help alleviate or moderate CA for students. These include: (1) cognitive restructuring, the use of coping statements to replace negative irrational thoughts about communication (Fremouw & Scott, 1979; Dwyer, 2005), (2) systematic desensitization, the use of progressive relaxation and imagery to reduce excessive physical activation and nervous feelings (Friederich, Goss, Cunconan, & Lane, 1997), (3) Rhetoritherapy or skills training, the incremental learning and practicing of effective communication skills (Kelly, 1997, Kelly, Phillips, & Keaten, 1995), and (4) visualization, the mental rehearsal of communication before participating in it (Ayres, Hopf, & Ayres, 1997). In addition, an array of in-class instructional activities have been used to help alleviate CA, such as speaking with a lectern, assigning ungraded or non-videotaped speeches, and announcing speaking order in advance (Adler, 1980; Booth-Butterfield, 1986; Connell & Borden, 1987; Neer & Kirscher, 1991; Dwyer, 1998). Finally, the creation of a safe and supportive learning environment has been suggested as an approach to help alleviate CA (Dwyer, 2005).

Anxiety and Social Support

Social support means having others to share similar struggles, similar emotions and similar ideas and is communicated in a way that enhances the recipient's well being (Jacobs, Harvill, & Masson, 1988). The concept of social support is multidimensional and involves behaviors such as listening without giving advice, providing comfort and caring, confirming a perspective of the world, acknowledging efforts, and providing services

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or assistance (1998). Several studies have reported that social support enhances feelings of belongingness and commonality, helps manage stress or anxiety, fosters goal commitment, and plays a key role in retaining students who are at risk of failing academically (Croniger & Lee, 2001; Daniels & Guppy, 1994; Lippert, Titsworth, & Hunt, 2005; Overholser, Norman, & Miller, 1990; Ray & Miller, 1994; Rosenfeld & Richman, 1999; Rosenfeld, Richman & Bowen, 1998).

Instructional communication and development scholars have suggested that some social support variables may be associated with lowering communication anxiety. However, these relational studies have several empirical limitations and have not focused on the student-to-student classroom climate.

For example, Ayres (1990) examined the relationship between speech anxiety and the five audience characteristics of size, status, familiarity, similarity, and behavior and found that when the audience was large, unfamiliar, dissimilar, or higher status, the respondent reported higher speech anxiety. Ayres suggested that speech instructors should work to create a supportive class environment before asking students to make presentations. However, Ayres' study did not focus on actual speakers in speaking situations, but relied on scenarios that students were asked to imagine.

Neer and Kircher (1991) reported that higher acquaintance level did not reduce speech anxiety, but nevertheless suggested that getting acquainted activities appear to reduce anxiety when the interaction is interpersonal or informal and not related to students giving each other speech feedback. Again, respondents did not

participate in actual in-class situations, but rated their perceived anxiety in hypothetical scenarios.

Booth-Butterfield (1988) stated that high communication apprehensives (high CAs) reported lower state anxiety when collaborating with friends (high acquaintance level) than when working with strangers. However, the focus of the study was on evaluation and task structure in dyadic getting-acquainted activities and not on classroom climate.

Connell and Borden (1987) found that increasing acquaintance level and familiarity seems to contribute to lowering CA when combined with cognitive restructuring and systematic desensitization. They reported that students who worked in small groups and discussed negative self-statements and positive cognitions showed significant reductions in communication anxiety. Hunter (1996) also found group interaction to be associated with anxiety. By decreasing the number of assigned speeches and increasing the amount of collaborative group work, students reported a decrease in performance anxiety at the end of the semester. Again, both studies focused on relational variables in subgroups, not on student-to student support in the classroom.

Booth-Butterfield (1986) reported that high CAs showed fewer behavioral disruptions, such as pausing disfluencies, during getting-acquainted exercises with low levels of instructor evaluation. She concluded: "Highly anxious students appear to need a supportive climate and more assignment structure to enhance their performance" (p. 342-343). Since this study focused on the use of instructor evaluation and instructional exercises, the suggestion of increasing a supportive class-

room climate was discussed and not empirically investigated.

Classroom Climate

Communication research on classroom climate has focused on the relationship between students and their instructors. Although this research has done much to suggest how instructor behaviors can be used to foster a supportive climate in the classroom, the studies also have limitations.

As early as 1970, scholars began to adopt Gibb's (1960) conceptualization of supportive versus defensive communication climate and apply it in the classroom environment (Hays, 1970; Rosenfeld, 1983). These studies measured a supportive classroom climate in terms of students' perceptions of their instructor's communication behavior. More recent research has continued to explore a variety of specific teacher behaviors that might be associated with supportive climate, such as teacher humor (Stuart & Rosenfeld, 1994), affinity-seeking (Myers, 1995), and argumentativeness (Myers & Rocca, 2001). However, these studies neglected the student-to-student behaviors that might foster student perceptions of a supportive classroom climate.

Nadler and Nadler (1990) examined student perceptions of instructor supportive and dominant communication behaviors that influence the supportiveness, or "chilliness," of the classroom climate. They found that in a supportive communication climate, "students felt more comfortable participating in class, disagreeing with instructors, and meeting with faculty outside of class" (Nadler & Nadler, 1990, p. 61). Again, this research fo-

cused only on teacher-to-student behaviors and not on student-to-student behaviors associated with a supportive climate.

Education researchers have investigated a variety of classroom climate variables but also have rarely focused specifically on supportiveness among students in university classrooms. Fraser, Treagust, and Dennis (1986) examined teacher-to-student behaviors and only minimally addressed how a cohesive classroom environment might be fostered by student-to-student behaviors. Lee and Robbins (1995) investigated students' feelings about belongingness, including companionship, affiliation, and connectedness of self in relation to the larger community, but these researchers did not query student perceptions of being connected to other students in the classroom.

McGrath, Gutierrez, and Valadez (2000) measured social support among college students, focusing on perceptions and reception of support from others within the students' larger social networks, but did not address social support among students in a specific college classroom. Finally, Schaps, Lewis and Watson (1997) investigated classroom community among students. However, they focused only on elementary school students through the sixth grade and not on university students.

In a study that conceptualized a supportive classroom climate as a student-to-student communication variable, Dwyer, et al. (2004) developed the Connected Classroom Climate Inventory (CCCI) to measure student perceptions of a supportive climate in the college classroom. They define connected classroom climate as students' perceptions that fellow students in a particular classroom are supportive and cooperative. As Dwyer

et al. (2004) explained, the definition of connected classroom climate integrates many constructs related to interpersonal support, including supportive climate (Gibb, 1960); cohesiveness (Fraser, et al., 1986; Malecki & Demaray, 2002), belongingness (Lee & Robbins, 1995), social support (McGrath et al., 2000), and classroom community (Schaps, et al., 1997).

In summary, social support research has provided a foundation for thinking about the possible relationship between reductions in communication anxiety and a supportive classroom climate among students. However, the validity of the previous findings is uncertain because (a) acquaintance level, familiarity, and group collaboration are narrow indicators of student-to-student supportiveness in the classroom and have received limited empirical investigation in relationship to CA, (b) students' responses to hypothetical scenarios may differ from their responses in actual classroom situations, and c) relationships between CA and classroom climate as a student-to-student phenomenon have not been tested in the university classroom. Therefore, further research is needed to assess the relationship between perceptions of classroom climate and CA with a focus on student-to-student connectedness in the natural classroom setting.

The purpose of this study is to explore the relationship between perceptions of a connected classroom climate and CA. If a relationship between these constructs exists for all students and more specifically for high CAs, strategies to increase connected classroom climate could be used as an intervention for treating CA — an idea that many have suggested or alluded to, but has not been shown empirically. Therefore, the following research questions are proposed:

RQ1: Is there a relationship between overall and context specific CA levels (initial or post-course) and student perceptions of a connected classroom climate measured at the end of an academic semester?

RQ2: Is there a relationship between overall and context specific *change* in CA levels from initial to post-course and student perceptions of a connected classroom climate measured at the end of an academic semester?

RQ3: For students categorized as high CA initially (according to national norm criteria), is there a relationship between *change* in CA levels from initial to post-course and student perceptions of a connected classroom climate measured at the end of an academic semester?

METHOD

Participants

Participants in this study were 523 undergraduate students (215 males, 306 females, 2 missing data) at a large Midwestern university enrolled in 30 total sections of the basic communication course. Since this course fulfills a general education requirement, a wide variety of majors was represented. The participants ranged in age from 17-44 with a mean age of 19.73 and SD of 2.80. Respondents represented a cross-section of class rankings (305 freshmen, 124 sophomores, 61 juniors, 20 seniors, and 13 missing data).

Procedures

Basic public speaking course instructors were asked by the course director to participate in this study. Participating instructors administered the initial survey during the first week of a fall semester. The survey consisted of demographic items, public speaking experience items, and the Personal Report of Communication Apprehension (PRCA-24) that was used as an initial-course measure of students' CA. In addition, during the last two weeks of the semester, the same instructors administrated the PRCA-24 again as a post-course measure of students' CA as well as the Connected Classroom Climate Inventory (CCCI). All questionnaires were completed during class time, and students were instructed to focus on their public speaking course when completing the CCCI. Instructors read a script that assured students of confidentiality and invited them to voluntarily participate in a research project that would ultimately help professors improve instruction in the basic course. The students placed the surveys in an envelope and instructors returned it to the basic course director. Approval from the University Institutional Review Board was obtained.

Instruments

Personal Report of Communication Apprehension (PRCA-24). The PRCA-24 was used to measure communication anxiety during the first week and again during the last two weeks of the semester. The PRCA-24 (McCroskey, 2001) is a 24-item, 5-point, Likert-type scale which assesses CA in each of four contexts, in-

cluding groups, meetings, interpersonal conversations, and public speaking, as well as overall communication anxiety across these four contexts. The PRCA-24 has demonstrated excellent reliability and predictive validity in its wide use in CA research (McCroskey, 1997). The reliability for the overall PRCA-24 was α=.94 initial course and α=.93 post course (see Table 1).

Connected Classroom Climate Inventory (CCCI). The CCCI is an 18-item Likert-type instrument (1=strongly disagree to 5=strongly agree) measuring students' perceptions of student-to-student behaviors and feelings that create a supportive, cooperative classroom environment. Sample items include, "The students in my class are supportive of one another" and "The students in my class show interest in what one another is saying." Research has found the CCCI to be a unidimensional scale with a high overall reliability of α=.94 and initial evidence of validity (Dwyer et al., 2004).

RESULTS

The 523 participants completed the initial-course PRCA-24, the post-course PRCA-24, and the CCCI. Means, standard deviations, and reliabilities for the initial-course and post-course PRCA-24 and the four subscales of group discussion, meetings, interpersonal conversations and public speaking are reported in Table 1. For the CCCI, the mean was 70.92, standard deviation was 9.92, and reliability was Cronbach $alpha$ = .94.

Pearson correlation was used to address RQ1. There were no significant correlations between the CCCI and the initial course PRCA –24 or any of its four subscales.

Table 1
PRCA — 24 Initial and Post-Course Means,
Standard Deviations and Reliabilities (N = 523)

	Mean	Standard Deviation	Alpha
Initial Course			
PRCA –24	62.96	16.14	.94
Group Discussion	13.99	4.61	.87
Meetings	15.27	5.00	.91
Interpersonal Conversations	14.17	4.54	.87
Public Speaking	19.54	6.19	.88
Post Course			
PRCA –24	56.87	14.98	.93
Group Discussion	12.97	4.37	.84
Meetings	14.13	4.55	.89
Interpersonal Conversations	12.91	4.32	.87
Public Speaking	16.87	4.93	.85

Table 2
CCCI Pearson Correlations with Post-Course PRCA –24
and Its Four Sub-Scales (N = 523)

Scale	r	p
PRCA –24	−.22	<.000
Group Discussion	−.21	≤.000
Meetings	−.19	<.000
Interpersonal Conversations	−.23	<.000
Public Speaking	−.12	<.01

However, significant negative correlations between the CCCI and the post-course PRCA –24 and its four sub-scales were obtained and are shown in Table 2.

To answer RQ2, PRCA change scores were calculated for all participants (change score = post-course PRCA-24 – initial PRCA-24; $M = -6.09$, $SD = 11.90$). A negative change score indicates a decrease in CA while a positive change score indicates an increase in CA. Means and standard deviations for change scores are shown in Table 3. Correlations between the CCCI and the change scores for the PRCA-24 and its four sub-scales are also shown in Table 3. Results show significant correlations between CA change scores and CCCI, indicating that higher scores on the CCCI were associated with reductions in overall and context-specific CA across the semester.

The analysis for RQ3 focused only on the students with high PRCA-24 scores at the beginning of the course (N=82). Using PRCA-24 national norms (McCroskey, 2001) four groups were established for *initial* PRCA-24

Table 3

PRCA –24 Change Scores: Means, Standard Deviations, and Pearson Correlations with CCCI (N = 523)

Scale	*Mean*	*SD*	*r*	*p*
PRCA –24 Change Score	−6.09	11.90	−.30	<.000
Group Discussion Change Score	−1.02	3.76	−.24	<.000
Meetings Change Score	−1.14	4.26	−.22	<.000
Interpersonal Conversations				
Change Score	−1.26	3.86	−.27	<.000
Public Speaking Change Score	−2.68	4.72	−.25	<.000

overall scores: Group 1 (high CA) $\geq$ 81; Group 2 (moderately high CA) 66-80; Group 3 (moderately low CA) 51-65; Group 4 (low CA) < 51. When students who were classified as high CA (Group 1) based on initial PRCA-24 scores were reclassified based on post-course PRCA-24 scores and national norms criteria, a one-way ANOVA with the follow up Student-Newman-Keuls procedure found significant differences (F = 3.48, df = 81, p = .02) in CCCI scores between groups. Those students who were initially high CAs and who were still classified as post-course "high CA" or "moderately high CA" reported lower CCCI scores than did those who were initially high CAs but who reported post-course low CA (see Table 4). Thus, a change in CA levels for initially high CA to lower post-course CA was associated with an increase in perceptions of connectedness.

Table 4
One-way ANOVA with Follow-up Student-Newman-Keuls: CCCI Mean Scores among Initial High CAs for PRCA–24 Post-Course CA Groups (N = 82)

PRCA–24 Group	N	CCCI
Group 1 (high CA)	21	67.05[a]
Group 2 (moderately high CA)	37	70.16[a]
Group 3 (moderately low CA)	21	74.76[a,b]
Group 4 (low CA)	3	83.00[b]

Means with the same superscripts do not differ from each other, p = .05.

DISCUSSION

The purpose of this research was to determine if there were any relationships between CA as measured by the PRCA-24 and classroom connectedness as measured by the CCCI for students enrolled in the basic public speaking course at a large Midwestern university.

The results for RQ1 revealed no significant correlations between scores on the CCCI and the *initial* course PRCA-24 or any of its four subscales. As could be expected, perceptions of connectedness among the students were not associated with CA levels at the beginning of a basic public speaking course. However, at the end of the semester, significant correlations were found between scores on the CCCI and *post*-course PRCA-24 and each of its four subscales. Thus, lower levels of CA reported by students at the end of the course were associated with higher reported perceptions of connectedness.

In answer to RQ2, a significant correlation was found between CCCI scores and the amount of change in PRCA-24 scores overall and on each of its four context subscales from the beginning of the semester to the end of the semester. A greater decrease in CA levels was associated with an increase in perceptions of connectedness.

Focusing on high CAs only, RQ3 asked whether the amount of CA change during the semester is associated with perceptions of connectedness at the end of the semester. Those high CA students who became low CAs at the end of the course reported significantly more con-

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nectedness than those high CA students who remained high CA or changed to moderately high CA.

This study confirms the intuitive, but previously not empirically documented, relationship between classroom climate and CA. It appears that students experiencing less communication anxiety in a public speaking classroom also perceive more connectedness in the classroom as measured by the CCCI. In other words, students who report lower CA also tend to develop a strong and friendly bond with each other, share stories and experiences, respect and praise each other, feel part of class discussions, are courteous with one another, engage in small talk, laugh and smile together, show interest and cooperate with one another, show supportiveness, and feel comfortable with each other (Dwyer, et. al, 2004).

It remains unclear whether a causal relationship exists between connectedness and CA. It may be that students with lower CA tend to perceive the classroom climate as more connected. However, a more exciting and interesting possibility for basic course instructors is that perceptions of connected classroom climate foster reductions in CA levels. Thus, connected classroom climate may be a possible intervention for moderating CA and if so, should be further cultivated in all basic course classrooms.

There are many ways that basic course instructors can foster community and connectedness in the classroom. For example, Cohen (1995) points out that building community is important for nurturing motivated learners, especially among college freshmen. She suggests strategies that include student involvement in the process of creating the syllabus, teacher-student meet-

ings, and cooperative groups. David and Capraro (2001) recommend that teachers refer to the classroom as "ours" rather than "my classroom," thus implying an ownership for the learning process (p. 81).

Zhao and Kuh (2004) suggest that learning communities can be built by incorporating "active and collaborative learning activities" and by promoting involvement in "social activities that extend beyond the classroom" (p. 116). For example, students can be encouraged to co-enroll in two or more courses with the same cohort of students so they can build relationships and a sense of community over time, especially during their first year at the university.

Basic course instructors also can incorporate service-learning projects into their classes to build connectedness. These assignments might include delivering speeches to elementary and high school students or community organizations on a variety of topics, such as date rape, alcohol and drug use, getting though college, smoking, self-esteem, and health or nutrition (Weintraub, 1999). As Perkins, Kidd, and Smith (1999) report, service-learning increases student feelings of "peer support and cooperation." (p. 40). By working together on common projects to serve their community, students may become "more supportive of one another's work and emotional responses" (Perkins, et. al., 1999, p. 39).

Walsh (2001) suggests six themes to build community in the classroom. Some examples of building community that would be useful to basic course instructors and directors might include: 1) membership (e.g., advise students that their membership in the classroom is an important element in supporting each other); 2) awareness (e.g., assure students that CA is not uncommon

and they will learn ways to manage their anxiety; 3) negotiation (e.g., give students choices in selecting among different types and topics for speeches and working with others in dyad or panel speeches); 4) responsibility (e.g., hold students accountable for their contributions to group work and panel speeches); 5) ritual (e.g., before addressing the audience, the speaker could be asked to turn to a classmate who would provide words of encouragement and support or suggest positive coping statements about the speech and the audience); and 6) group memory (e.g., students together could reflect on the content of an entire round of speeches and share with each other how each speech impacted them).

If instructional strategies, such as the ones discussed here, foster a connected classroom climate, our study suggests that they also can be associated with reductions in CA. Future investigation needs to further examine possible methods for increasing classroom connectedness, especially in the basic course, and its impact on reducing speech anxiety.

Limitations and Recommendations for Future Research

This study took place during one semester at one university in multiple sections of one particular public speaking course. We do not know if the results would be the same for different communication courses at this university or for public speaking courses at other universities. Another limitation is the newness of the CCCI instrument. Others need to examine the usefulness of the CCCI. For instance, the CCCI scale could be correlated with other variables such as supportive talk about

school (Lippert, Titsworth, & Hunt, 2005) and overall social support among college students (McGrath, et. al., 2000).

The CCCI needs to be distributed at multiple points during a semester to assess change in perceptions of classroom connectedness over time. It is possible that connectedness could change from mid-semester to the end of the semester. If that is the case, instructors need to be more conscious of the need to foster and maintain connectedness throughout the course.

Other questions to consider involve issues of causality: Do increases in connectedness cause reductions in CA? Are students with low CA more likely to develop connectedness with their classmates? Is the relationship between CA and connectedness due to some mediating variable such as teacher behavior?

In conclusion, this research suggests the value of fostering perceptions of classroom connectedness, especially among students enrolled in a basic course. Instructors have frequently suggested the importance of creating perceptions of social support in the basic speech course in an effort to help students moderate speech anxiety. This study affirms that approach. Basic course instructors should continue to develop instructional techniques or strategies to foster student-to-student connectedness in the university classroom, not only because supportiveness has benefits for retention, goal attainment, and stress management, but also because connectedness may help students reduce speech anxiety.

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