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Establishing a positive classroom climate that fosters student learning is an important goal for instructors. It is particularly important in the basic course because students often take this course at the beginning of their careers in higher education. At this stage, students are more likely to drop out of college (McGrath & Braunstein, 1997) or may feel disconnected and isolated from others (Christie & Dinham, 1991; Harrison, 2006). The basic course provides an opportunity to foster a supportive environment that may assist with student learning, retention, and satisfaction in the course, as well as in college.

Previous research has found a positive relationship between classroom climate and student learning. However, most of this research has examined the instructor's role in creating an environment that promotes learning (Finnan, Schnepel, & Anderson, 2003; Hyman & Snook, 2000; Nunnery, Butler, & Bhaireddy, 1993) and has not focused on the impact of student behaviors on the learning environment. A classroom in which students actively participate and develop a sense of cama-

raderie through communication behaviors may help to create a positive environment where learning is enhanced.

One classroom climate variable that may be associated with student learning is *classroom connectedness*, 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). Greater connectedness among students may foster learning because when students work together and support each other, they become more academically engaged (Kuh, 2001). Therefore, this study explores the relationship between students' perceptions of classroom climate in the basic course and perceptions of learning.

LITERATURE REVIEW

Classroom Connectedness

In the 1970s, scholars began to adopt Gibb's (1960) conceptualization of supportive versus defensive communication climate and apply it to the classroom setting (Hays, 1970; Rosenfeld, 1983). These researchers queried supportive classroom climate and student perceptions of their instructor's communication behaviors. They found that a variety of specific teacher behaviors can be associated with supportive climate, including teacher humor (Stuart & Rosenfeld, 1994), affinity-seeking (Myers, 1995), and argumentativeness (Myers & Rocca, 2001). In addition, Nadler and Nadler (1990) examined student perceptions of instructor supportive and dominant communication behaviors and 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).

Educational researchers have also examined students' sense of supportiveness and connection. For example, they have investigated the impact of teacher-to-student behaviors on classroom climate (Fraser, Treagust, & Dennis, 1986), student perceptions of being connected to the larger campus community (i.e., students' feelings about belongingness, companionship, and affiliation) (Lee & Robbins, 1995), social supportiveness among college students in their social networks (McGrath, Gutierrez, & Valadez, 2000), and classroom community among elementary school students (Schaps, Lewis & Watson, 1997).

Based on the communication and educational literature, it is apparent that classroom climate is an important area to study. However, previous research has focused almost entirely on a teacher's impact on climate and has rarely investigated student behaviors that foster a supportive classroom climate and learning.

To address the concept of a classroom climate that is created through communication among students, Dwyer et al. (2004) developed the Connected Classroom Climate Inventory (CCCI). They conceptualized classroom climate as students' perceptions that the students in a particular classroom are supportive and cooperative. As Dwyer et al. (2004) explained, the definition of a 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 & Rob-

bins, 1995), social support (McGrath et al., 2000) and classroom community (Schaps, et al., 1997).

In previous studies, classroom connectedness has been found to be associated with lower communication anxiety levels in the public speaking course (Carlson, Dwyer, Bingham, Cruz, Prisbell, & Fus, 2006) and higher degrees of teacher verbal and nonverbal immediacy (Bingham, Carlson, Dwyer, Prisbell, Cruz, & Fus, 2004). However, the association between student perceptions of connected classroom climate and student learning has not been explored.

Student Learning

According to Hurt, Scott, and McCroskey (1978), "it is generally acknowledged that there are three broad domains of learning: a cognitive domain, an affective domain, a psychomotor domain" (p. 28). The two domains examined most often in the instructional communication literature are the cognitive and affective domains (Mottet & Beebe, 2006).

Based on Bloom's (1956) taxonomy and Anderson and Krathwohl's (2001), along with their colleagues, revised taxonomy, cognitive learning involves "the processes by which information is converted into knowledge and made meaningful" (Mottet, Richmond, & McCroskey, 2005, p. 8). Cognitive learning has been operationalized by communication researchers to include both how much students think they learned in a class and how much they could have learned if their instructor had been ideal. The difference between how much students perceived they learned and how much they perceived they could have learned is referred to as "learn-

ing loss" (Richmond, McCroskey, Kearney, & Plax, 1987).

Affective learning, on the other hand, focuses on "addressing, changing, or reinforcing students' attitudes, beliefs, values, and underlying emotions or feelings as they relate to the knowledge and skills they are acquiring" (Mottet & Beebe, 2005, p. 8). When students engage in affective learning, they are self-motivated to learn and appreciate what they learn. Affective learning has been operationalized by communication researchers to include attitude toward content, attitude toward instructor, and attitude toward communication behaviors that are recommended in a course (Richmond, 1990).

Another component of affective learning is affective behavioral intent (Mottet & Richmond, 1998). Affective behavioral intent in the classroom has been operationalized by communication researchers to include the likelihood of enrolling in another course in the same subject area or a course with the same teacher, or using the behaviors recommended in the class (Richmond, 1990).

Previous research has found a positive relationship between classroom climate and student learning. However, most of this research has emphasized the instructor's role in creating a climate that promotes learning (Finnan, Schnepel, & Andersen, 2003; Hyman & Snook, 2000; Nunnery, Butler, & Bhaireddy, 1993). For example, cognitive and affective learning have been associated with teacher immediacy (Anderson, 1979; Christophel, 1990), perceived caring (Teven & McCroskey, 1996), clarity (Chesebro & McCroskey, 2001), humor (Gorham, 1988; Wanzer & Frymier, 1999), interest and engagement cues (Titsworth, 2001), affinity-seeking,

(Richmond, 1990; Roach, 1991), and communicator style and disclosiveness (Nussbaum & Scott, 1979). The impact of student behaviors on the learning environment has been largely overlooked in the communication literature.

The purpose of this study is to examine the association between student-to-student classroom connectedness and student learning. We address the following research question:

Are student perceptions of classroom connectedness related to student perceptions of cognitive learning, affective learning, and affective behavioral intent?

METHOD

Participants

Participants in the present study were 437 undergraduate freshman and sophomore students at a large Midwestern university. These students were all enrolled in the basic public speaking fundamentals course representing a total of 30 different sections (maximum enrollment of 25 students per section). The course used a standard syllabus and the same textbook and student workbook in all the sections. It required all students to deliver at least four formal speeches, engage in classroom activities, and take two exams. All instructors were given a course manual that included weekly lesson plans, class policies, and additional instructional training materials.

This study was part of a series of studies designed to examine the impact of the basic course on relationships among several variables that potentially could affect

student retention and overall success in college. Since the basic course fulfills a general education requirement of the university, a wide variety of majors was represented. Participants in the present study included 177 males, 259 females (1 missing data). There were 313 freshmen and 124 sophomores ranging in age from 17 to 35 with a mean age of 19.09 (SD =1.97).

Procedures

Basic public speaking course instructors were asked by the course director to participate in this study. Participating instructors administered the survey during the last two weeks of a fall semester. The survey consisted of demographic items (gender, age, year in school) and instruments designed to measure perceptions of classroom connectedness, cognitive learning, affective learning, and affective behavioral intent. All questionnaires were completed during class time, and students were instructed to focus on their fundamentals of public speaking course when completing the instruments. 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.

Instrumentation

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," "The students in my class cooperate with one another," and "The students in my class respect one another." Research has found the CCCI to be a unidimensional scale with a high overall reliability of alpha =.94 and evidence of validity (Carlson et al., 2006; Dwyer et al., 2004).

Cognitive learning. Perceptions of cognitive learning were measured using student responses to two items (Richmond, McCroskey, Kearney, & Plax, 1987). The first item asked students to indicate on a ten-point semantic differential-type scale how much they felt they learned in their basic public speaking class (i.e., 0=learned nothing to 9=learned more than in any other class you've had). The second item asked students to indicate how much they believed they could have learned if they had the ideal instructor for the class. A *learning loss* score was calculated by subtracting the scores on item one from the scores on item two.

Affective learning and affective behavioral intent. Perceptions of affective learning were assessed by asking students to complete three subscales which measured student attitudes toward 1) the class content, 2) the instructor, and 3) the public speaking behaviors recommended in the course. Each subscale consisted of four seven-point semantic differential-type items (i.e., *good/bad*, *valuable/worthless*, *fair/unfair*, *negative/positive*). Reliabilities for these subscales have been reported above alpha = .90 (McCroskey, 1994; Richmond, 1990).

Perceptions of affective behavioral intent were assessed by asking students to complete three subscales measuring intent to 1) enroll in another course of related content, 2) enroll in another course with the same teacher if time and schedule permit, and 3) use the public speaking behaviors recommended in the course. Each subscale consisted of four seven-point semantic differential-type items (i.e., unlikely/likely, impossible/possible, improbable/probable, would not/would). Reliabilities for these subscales have been reported above alpha = .90 (McCroskey, 1994; Richmond, 1990).

Previous research has examined the three subscales of affective learning (12 total items) and the three subscales of affective behavioral intent (12 total items) separately as well as by summing across all six subscales to obtain an overall instructional affect score (Richmond, 1990). For the overall instructional affect score, Richmond (1990) reported a reliability of alpha = .96.

RESULTS

Table 1 presents the means, standard deviations, and alpha reliabilities for the Connected Classroom Climate Inventory (CCCI); the three subscales of *affective learning* (measuring class content, the instructor, and the public speaking behaviors recommended in the course); the three subscales of *affective behavioral intent* (measuring intent to use the public speaking behaviors recommended in the course, intent to enroll in another course of related content, and intent to enroll in another course with the same teacher if time and schedule

permit); and *overall instructional affect* (which is the sum of the 24 total individual items that made up the *affective learning* and *affective behavioral intent* subscales). All these scales had acceptable reliabilities greater than alpha = .88.

In addition, Table 1 contains the means and standard deviations for the three items which comprised *cognitive learning*. The first item (how much the students felt they learned in their basic public speaking class) and the second item (how much the students be-

Table 1
Classroom Connectedness (CCCI, Affective Learning, Affective Behavioral Intent, Overall Instructional Effect, and Cognitive Learning Means, Standard Deviations, and Reliabilities (N=437)

	M	*SD*	*Alpha*
CCCI	72.22	10.12	.94
Affective Learning			
Class Content	23.86	3.68	.88
Instructor	25.31	3.98	.94
Public Speaking Behaviors	24.36	3.72	.95
Affective Behavioral Intent			
Enroll in related course	23.74	4.60	.96
Enroll in another course with same instructor	17.68	6.25	.97
Use Public Speaking Behaviors	20.44	7.27	.96
Overall Instructional Affect	135.39	22.31	.96
Cognitive Learning			
Learned in class	6.26	1.61	
Learned if had "ideal" instructor	6.24	1.87	
Learning Loss	–.02	1.83	

Table 2

Pearson Correlations between Classroom Connectedness (CCCI) and Affective Learning, Affective Behavioral Intent, Overall Instructional Affect, and Cognitive Learning (N=437)

		Affective Learning			Affective Behavioral Intent			Overall Instructional Affect	Cognitive Learning		
		Class Content	Instructor	Public speaking behaviors	Use public speaking behaviors	Enroll in related content	Enroll with same instructor		Learned in class	Learned with "ideal" instructor	Learning loss
CCCI	1.00	.34***	.29***	.24***	.24***	.12*	.22***	.30***	.24**	.08	–.13**
Affective Learning											
Class content		1.00	.69***	.69***	.53***	.35***	.52***	.78***	.57**	.20***	–.30***
Instructor			1.00	.51***	.35***	.24***	.63***	.72***	.56**	.03	–.46***
Public Speaking behaviors				1.00	.62***	.37***	.44***	.75***	.48**	.23***	–.18***
Affective Behavioral Intent											
Use public speaking behaviors					1.00	.44***	.40***	.71***	.43**	.28***	–.09
Enroll in related course						1.00	.56***	.72***	.33**	.22***	–.06
Enroll with same instructor							1.00***	.84***	.51**	.18***	–.26***
Overall Instructional Affect								1.00	.62**	.26***	–28***
Cognitive Learning											
Learned in class									1.00	.46***	–.41***
Learned with "ideal" instructor										1.00	.62***
Learning loss											1.00

*** p < .001, **p<.01, *p<.05

lieved they could have learned if they had the ideal instructor for the class) each had a range of 1 to 9. The third item (learning loss) ranged from –7 to +7.

Table 2 presents the Pearson product-moment correlations between the CCCI, the three subscales of *affective learning*, the three subscales of *affective behavioral intent*, *overall instructional affect*, and the three measures of *cognitive learning*.

For *cognitive learning*, the item measuring how much the students felt they learned in their basic public speaking class was positively correlated ($r = .24$, $p < .001$) with the CCCI. The item also was positively correlated with all of the *affective learning*, *affective behavioral Intent*, and *overall instructional affect* measures, and the item measuring how much the students believed they could have learned if they had the ideal instructor for the class, but was negatively correlated ($p < .001$) with learning loss.

The cognitive learning item measuring how much students believed they could have learned if they had the ideal instructor for the class did not correlate with the CCCI. This item also was not correlated with affect toward the class instructor, but was significantly correlated ($p < .001$) with all of the other *affective learning*, *affective behavioral intent*, *overall instructional affect* measures, and with learning loss.

Learning loss was negatively correlated with the CCCI ($r = -.13$, $p < .001$). It was also negatively correlated with the three *affective learning* items, desire to enroll in another course with the same instructor, and *overall instructional affect*, and was positively correlated with how much students believed they could have learned if they had the ideal instructor for the class.

Learning loss was not correlated with intended use of the public speaking behaviors recommended in the course or intent to enroll in another course of related content.

For *affective learning* and *affective behavioral intent*, the CCCI was positively correlated with the three affective learning subscales, including student affect toward the class content ($r = .34$, $p < .001$), the instructor ($r = .29$, $p < .001$), and the public speaking behaviors recommended in the course ($r = 24$, $p < .001$); and with the three *affective behavioral intent* subscales, including intent to use the public speaking behaviors recommended in the course ($r = .24$, $p < .001$), intent to enroll in another course with related content ($r = .12$, $p < .05$), and intent to enroll in another course with the same instructor ($r = .22$, $p < .001$). The CCCI was also positively correlated with *overall instructional affect* ($r = .30$, $p < .001$).

DISCUSSION

This study examined the association between student-to-student classroom connectedness and student learning. The results showed that there is an association between university students' perceptions of student-to-student connectedness in the classroom and cognitive learning, affective learning, affective behavioral intent, and overall instructional affect. Thus, students who feel a stronger bond and report that they praise one another, show support and cooperation, share stories, and engage in small talk, report they learned more in the course. They also report more affect toward

the course content, the instructor, and the public speaking behaviors taught in the course and they say they are more likely to enroll in another course with related content as well as with the same instructor.

Student perceptions of cognitive learning were measured by both how much they felt they learned in their public speaking class and how much they felt they could have learned if they had the ideal instructor for the class. The findings showed a significant correlation between student-to-student connectedness and how much students perceived they learned in the class. A learning loss score was calculated by subtracting how much students felt they learned from how much they could have learned from an ideal instructor. The results were surprising in that essentially no learning loss was reported on average (M=.02, SD=1.83). A small, significant inverse correlation was found between CCCI and learning loss. Although the magnitude of the correlation was minuscule, the direction suggests that students who reported feelings of connectedness in the classroom reported less learning loss.

Taken together, these findings on cognitive learning indicate that when students experienced greater connectedness, they also felt they learned more and they perceived their classroom learning to be similar to what it would have been if they had an ideal instructor. These findings supplement previous research on classroom climate and learning by suggesting that students' perceptions of the climate-related communication behaviors of their classmates—not just of their instructor—are associated with their perceptions of how much they learned in a class.

Perceptions of affective learning were assessed by three subscales which measured student attitudes toward the class content, the instructor, and the public speaking behaviors recommended in the course. The correlations between CCCI and the subscales were all significant and positive. These findings indicate that students who experienced greater classroom connectedness tended to evaluate the class content, the instructor, and the pubic speaking behaviors recommended in the course to be "good," "fair," "valuable," and "positive." Therefore, when students felt more connected, overall affective learning was enhanced.

Perceptions of affective behavioral intent were assessed by three subscales measuring intent to 1) enroll in another class of related content, 2) enroll in another course with the same instructor, if time and schedule permit, and 3) use the public speaking behaviors recommended in the course. Again, the correlations between CCCI and the affective behavioral intent subscales were significant and positive. These findings indicate that students who experienced greater classroom connectedness also tended to report a higher likelihood of enrolling in another course of related content, enrolling in another course with the same teacher, and using the public speaking behaviors in the course. Not surprisingly, students who experienced greater connectedness also reported higher overall instructional affect scores.

Pedagogical Implications

Basic course instructors should continue to foster cognitive and affective learning and affective behavioral

intent among their students by incorporating instructional strategies that give students opportunities to develop a sense of connectedness. Since the items constituting the CCCI are associated with the cognitive and affective learning domains, basic course instructors need to encourage students to use behaviors measured by those items, such as engaging in small talk, sharing stories, supporting and praising one another, taking part in class discussions, and communicating mutual respect.

There are numerous instructional strategies that are likely to promote both classroom connectedness and learning in the basic course. These strategies include: getting-to know-you exercises (e.g., human scavenger hunts), introductory speeches (e.g., dyadic interviews and class presentations), impromptu speeches (e.g., about current news events, movies, or weekend activities), and group mini-speeches in which students collaborate to develop and present short speeches. Interactions resulting from these types of activities may enhance interpersonal relationships among students, thus fostering their sense of connectedness.

Basic course instructors can also teach students how to listen empathically as audience members and give one another supportive feedback on speeches and class discussion. For example, instructors can encourage students to rephrase what they heard other students say and acknowledge others' responses before giving their own opinions. Instructors should serve as role models by demonstrating empathic listening and supportive feedback behaviors.

Limitations and Future Research

Generalizations from this study are limited because data were collected during one semester at one university in multiple sections of the basic public speaking fundamentals course. Future research is needed to determine whether the results can be replicated in different types of basic courses. Another concern involves the nature of the instructors teaching the course. Many of these instructors were trained in instructional communication in their master's programs and were taught to display immediacy, which could have impacted student perceptions of connectedness. Future research needs to involve instructors with different levels of preparation at other institutions.

Another limitation involves the scales measuring cognitive learning in this study. This measure focused on students' *perceptions* of their cognitive learning instead of on actual learning that occurred. The relationship between a connected classroom climate and more direct measures of students' cognitive learning should be investigated (e.g., test scores, speech grades, and other graded assignments) in future research.

The findings on the relationship between student-to-student connectedness and learning add to the body of literature on student learning and classroom climate. Again, the findings suggest that instructors are not the only ones whose behavior is associated with classroom climate and student learning; certain student-to-student behaviors also are associated with a supportive, cooperative classroom climate in which learning is enhanced. Other measures of student-to-student behaviors such as immediacy, affinity seeking, self-disclosure, trust, and perceived caring, deserve more attention in

the communication, classroom climate, and learning literature.

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