

Student Motivation and Instructor Immediacy in Community College Mathematics Classes

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Abstract: This quantitative study tested possible relationships between instructors' immediacy behaviors and student motivation. The participants were 103 undergraduate students enrolled in introductory mathematics classes at a community college located in the Southwestern United States. Data from surveys measuring instructor's verbal and nonverbal immediacy behaviors and student motivation were correlated using a linear regression. The results indicate that instructors' verbal and nonverbal immediacy behaviors are positively related to student motivation and account for 7.9% of the variance for student motivation. These results have implications for instructors in these classes who may be advised to display more positive immediacy behaviors. Further studies will advance this line of investigation by providing comparative information on student motivation at liberal arts colleges and at major research universities.

Key words: Student motivation; Verbal immediacy; Nonverbal immediacy; Community college mathematics students

Introduction

Community colleges in the United States play a significant role in educating today's workforce. These colleges are equivalent to undergraduate institutions or two year colleges in other countries. Typically the student population consists of those attending part-time, those returning to school after many years in the work force, and those of lower economic means. These categories often coincide with higher representation from underrepresented groups, primarily Hispanic, in the American Southwest.

Students in community colleges come from diverse backgrounds and have varying levels of motivation in their mathematics classes (Miller, 1999). Motivation in mathematics is related to several factors such as background, aptitude and type of instruction. However, some student motivation factors in higher education are

related to instructor behaviors (Cunha & Cunha, 2002) and here we examine one of those instructor behaviors.

In this paper we examine instructor immediacy, which may be defined as a communication variable that impacts the perception of physical and psychological closeness (Richmond, Gorham, & McCroskey, 1987). Verbal immediacy is verbal messages that convey the “use of pro-social as opposed to antisocial messages to alter student behavior” (Gorham, 1988, p. 41). Nonverbal immediacy is nonverbal “behaviors that reduce physical and/or psychological distance between teachers and students” (Andersen, 1979, p. 543).

Motivation may be defined as the amount of effort a student desires to exert in a particular class (Richmond, 1990). This may be classified as Intrinsic Motivation, that an individual has for the enjoyment of an activity (Kreps, 1990) and Extrinsic Motivation, that an individual has for an activity due to a reward received for performing the activity (Kreps, 1990).

In the community college context previous research addressing immediacy is limited and we attempt to fill some of the gaps in that research. In particular we note that previous work has been conducted primarily at major research universities and in the context of communications studies rather than mathematics, which we examine in this paper. In addition, some prior research has focused on one or the other form of immediacy alone with student motivation. In our study both forms are examined in an attempt to understand their correlation.

We begin with a look at the literature on immediacy and student motivation in general and follow that with some research insights into the community college experience and, in particular, student motivation in mathematics at the community college level. We then describe our study of community college mathematics students’ motivation. We present results and discuss the implications for community college mathematics instructors. In conclusion we offer suggestions for future research.

Review of Literature

Category of Instructor Behaviors and Student Motivation

The research literature shows that instructors impact student motivation (Cunha & Cunha, 2002). Deci (1971) presents early research on the influence a person in power may have on his or her subordinate’s intrinsic motivation. Deci’s work is important for two reasons. Firstly, it was an early work that brought to the forefront

intrinsic motivation as influenced by social interactions. Secondly, it indicates that instructor behaviors can influence student motivation, which is also supported by more recent research (Anderman, 2004; Christensen & Menzel, 1998; Christophel & Gorham, 1995; Elliot & Knight, 2005; Turner & Patrick, 2004).

Perricone's (2005) article also suggests that external rewards can increase student motivation. He states that teachers should stress the importance of learning particular material and how it is relevant to their lives. Elliot and Knight (2005) state that external rewards are likely to increase student motivation only in the short term when students are told about the reward before performing the task because the students focus less on enjoying the task and more on completing the task for the reward. They state that it is much better for instructors to exhibit behaviors aimed at increasing student motivation. Some of the behaviors that instructors can exhibit are those that communicate a message to students such as having choices, providing feedback, interpersonal involvements, acknowledging students feelings, having celebrations rather than rewards, real life models, and cooperative learning.

Anderman (2004) argues that student motivation is influenced by the instructional context. He states that students' mean motivational levels change in different courses. This indicates that instructors within the classroom do have some influence on student motivation and that student motivation is less stable and more difficult to predict across contexts. Turner and Patrick (2004) found that students' motivation does change from class to class and year to year. These changes often occur as a result of teacher communication behaviors that open communication between students and the teacher. Some of the instructor behaviors that they identified as influential to student motivation were behaviors that communicated that they cared for the students. Other positive instructor behaviors included teacher self-disclosure and calling on students.

Sass (1989) found in his study of 700 college students, eight teacher characteristics associated with high student motivation. Enthusiasm and communicating relevance were most important. Enthusiasm concerning lesson content was strongly influenced by teachers (Rinne, 1998), while Ralph (1998) found that friendliness, enthusiasm, and encouragement were valued by college students.

Instructor Immediacy

One form of instructor behavior that has been found to positively influence student motivation is related to instructor immediacy, as defined in the Introduction (Christensen & Menzel, 1998; Christophel & Gorham, 1995). Hampton and Reiser (2004) found that instructors can be taught immediacy behaviors. They investigated graduate student teaching assistants' changes in behavior and how these behaviors

relate to student motivation. Teaching assistants who previously did not use immediacy behaviors but did implement them in their instruction, increased student motivation more than those graduate teaching assistants who did not use these behaviors.

Nonverbal behaviors identified as immediate include: eye-contact, physical gestures, relaxed body position, directing body position toward students, smiling, vocal expressiveness, movement, and proximity (Andersen, 1979). Vocal expressiveness, smiling at the class, and a relaxed body posture were found to have the most significant effect on student cognitive learning (Richmond, Gorham, & McCroskey, 1987). Nonverbal immediacy behaviors can influence student perceptions of teachers and result in positive instructional outcomes (McCroskey, Valencic, & Richmond, 2004). Chaikin, Gillen, Derlega, Heinen, and Wilson (1978) found that certain nonverbal immediacy behaviors such as eye contact, leaning forward, smiling, and head nods influenced teacher evaluation ratings.

Some verbal immediacy behaviors exhibited by teachers include: using personal examples, humor, engaging in conversations with students before, after, or outside of class, encouraging students to talk, referring to the class as “we,” or “our,” asking for students’ input, teachers’ self-disclosure, addressing students by name, praising students’ work, addressing instructors by their first name, and being available for students outside of class if they have any questions (Gorham, 1988).

Immediacy and Motivation

Instructors’ immediacy behaviors can lead to beneficial outcomes (Weber, Martin, & Patterson, 2001) such as increased student motivation (Elliot & Knight, 2005; Ellis, 2004; Glynn, Aultman, & Owens, 2005; Jaasma & Koper, 1999; Seifert, 2004). Both verbal and nonverbal immediacy are found to have a linear relationship with motivation (Christensen & Menzel, 1998; Ellis, 2004). Student motivation has been linked to student learning (Paas, Tuovinen, Merrienboer, & Darabi, 2005). Furlich (2004a) found that behaviors resembling immediacy were influential to students approaching instructors to communicate, finding that graduate students were more motivated to communicate outside of the classroom with faculty members from whom they perceived higher levels of immediacy than with those faculty members who displayed fewer immediacy behaviors.

Motivation among Community College Students

Community colleges are primarily two year institutions that offer the equivalent of two years of university education. These colleges are often attended by students who may not be ready for university due to academic or financial constraints.

Students who return to school after a prolonged absence comprise a larger proportion of those attending these colleges. Students enter community colleges with varying goals (Furlich, 2004b) and many of the students enter the system at differing levels of education. (Richardson & Bender, 1987). Students and instructors in one type of institution tend to differ from students and instructors at a different type of institution and the focus of the institutions also differs (Ovington, Diamantes, Roby, & Ryan, 2003; Sorcinelli, 2002). For instance, many community colleges have a higher mean age for students (U.S. Department of Education, 2002). Therefore, differences with regards to the relation of instructor immediacy behaviors and student motivation may exist.

Motivation in Mathematics Classes

Miller (1999) investigates perceptions of what motivates students to learn in developmental mathematics courses of the type offered in community colleges. Higbee (1996) suggested that developmental educators convince students that past failures may have resulted from lack of background knowledge or lack of effective strategies if effort was already exerted. She explained the value of developmental educators offering opportunities for success which would enhance expectancy. She believed it was valuable for students to take control and assume responsibility for their futures.

Students' perceptions of the usefulness of mathematics are highly correlated with their plans to take more mathematics courses (Edkard, 1995; Pedro, Wolleat, Fennema, & Becker, 1981; Thorndike-Christ, 1991). This may be more significant for community college students who do not wish to take more courses. Frymier and Shulman (1995) found that college students, who reported instructors who used explicit relevance behaviors, perceived that the content applied to themselves. Students need to know that mathematics is relevant to their lives and instructors can teach that mathematics is connected to life outside of the mathematics classroom and useful in many areas of life. Schunk (1997) recommends connecting to students' interests in order to inspire perceived relevance of mathematics among developmental mathematics students. Ma (1997) found that among Dominican Republic high school seniors there was a reciprocal relationship between attitude and achievement in mathematics and recommended that mathematics be presented in an interesting way.

Brown (1995) states that developmental students report valuing instructor helpfulness, caring, and accessibility. Her study also found that students believed it was valuable to feel they belonged to their college community. Higbee (1996) reported that her developmental students listed grades, future goals, parents' expectations, sense of accomplishment, and friends, teachers or significant others

most frequently as factors that influence their motivation to do their homework and study. Keller (1987) suggests that low expectancy of success may be a problem in an algebra class for non-college bound students. These students may need a boost in confidence before they will be able to perceive the relevance of mathematics.

For some developmental mathematics students an important *extrinsic goal* is passing a state test in order to continue taking college courses (Miller 1999). Some students may see passing the test as their only goal related to mathematics learning. Others see passing the test and passing one required college level mathematics course for their program as their primary mathematics goal. However, Middleton and Midgley (1997) suggest that students are not limited to one goal orientation, but that they may have several levels of different goal orientations. Students often have only external goals for studying mathematics. Pintrich and Schunk (1996) describe external extrinsic motivation among students who do not want to learn mathematics, but they do so because they want the teachers' rewards and they want to avoid punishment. Middleton and Spanias (1999) suggested that students learn motivational patterns and that most students learn to dislike mathematics.

Jackson and Leffingwell (1999) investigated the role of instructor behaviors in creating math anxiety at all grade levels from kindergarten through college. These behaviors can be either overt or covert and exhibited either verbally or non verbally. One hundred and fifty seven (157) senior level college students were surveyed. It is interesting to note that these students were highly motivated but 146 of them reported math anxiety occurred at some stage between kindergarten and college senior level. Furthermore this anxiety was often related to instructor behavior. The authors discuss the implications for math instructors and offer suggestions on how to modify behavior to reduce math anxiety in their students.

While the above works examine motivation in general in mathematics classes, the study in this paper looks closely at the particular influence of instructor immediacy on student motivation in mathematics classes.

Methods

Sample and Procedures

A survey method is used in this study in order to test the relationships between both forms of instructors' immediacy behaviors and student motivation. The instruments, described below, were chosen specifically to measure verbal immediacy, non-verbal immediacy, and student motivation.

The study uses a convenience sample of 103 undergraduate students enrolled in introductory mathematics classes at a community college located in the Southwestern United States. These classes were all taught by one instructor who was chosen because of a previous working relationship with one of the researchers. There were six sections with students distributed evenly between beginning algebra, intermediate algebra, and college algebra.

The major focus in community colleges is on developmental mathematics and the primary courses are related to different levels of algebra. The authors desired to study the behaviours in a community college situation so it was natural to examine them in such a class. Future studies are planned, which will examine motivation and immediacy in higher level mathematics but these will have to take place at a research university.

The researcher collected the data and the instructor had no role in the study. The surveys were administered by one of the researchers in the middle of the semester at the beginning of a class period. Participants had as much time as needed and all had completed within 15 minutes.

The students had a mean age of 25.08 with a standard deviation of 7.84. Ages ranged from 17 to 52. Classification and ethnicity are shown in Table 1. On the sex classification 38.0% of students were male, and 62% were female. Only 72 of the 103 students filled in their classification category and 89 students reported their ethnicity.

Table 1
Student demographics

Number of students	Number reporting	Freshman	Sophomore	Junior
103	72	40	29	3

Number of students	Number reporting	White	Black	Asian	Hispanic
103	89	52	9	1	27

Instruments

This study used nonverbal immediacy, verbal immediacy and student motivation instruments developed and tested by previous scholars. Appendices 1 to 3 show each of these instruments respectively. These instruments had already been used by

previous researchers and one of the authors had reliably tested the variables of interest. These instruments measure instructors' verbal and nonverbal immediacy behaviours and motivation in general rather than specifically in mathematics.

Motivation Instrument. The motivation scale was developed by Christophel (1990). The instrument consists of 12 items with two bipolar words separated by 7 numbers between them. The student circles the number towards either word which best represents his or her motivation for that class. The instrument has a theoretical range from 12-84. It has been used in previous research studies to measure student motivation with reliability (Beatty, Forst, & Stewart, 1986; Beatty & Payne, 1985; Christophel, 1990; Richmond, 1990). Christophel (1990) used the 12 items with a reliability coefficient of .96 for the twelve item measure. The present study achieved acceptable reliability for student motivation ($\alpha = .9174$, $M = 56.98$, $SD = 15.56$).

Nonverbal Immediacy Instrument. Richmond, Gorham, and McCroskey (1987) developed the instructors' nonverbal immediacy instrument. It consists of 14 items that address an instructor's use of nonverbal immediacy behaviors. Students indicate from 0-4 for each item how often his or her instructor has used nonverbal behaviors throughout the semester. It has a theoretical range from 0-56. It has been used by previous scholars to test instructors' use of nonverbal immediacy behaviors with reliability. Rocca (2004) used this nonverbal immediacy scale and produced a reliability coefficient of .86, while Christensen and Menzel (1998) used it and produced a reliability coefficient of .73. The present study achieved acceptable reliability for nonverbal immediacy ($\alpha = .7263$, $M = 40.45$, $SD = 6.28$).

Verbal Immediacy Instrument. Gorham (1988) developed the verbal immediacy scale. The scale is intended to measure student perceptions of their instructor's verbal immediacy behaviors. The verbal immediacy scale has 17 items. Each item presents a particular example of a teacher's verbal immediacy behavior. Students indicate from 0-4 for each item how often his or her instructor has used a particular verbal immediacy behavior throughout the semester. The instrument has a theoretical range from 0-56. Christophel (1990) used the verbal immediacy scale and found a reliability coefficient of .80. Gorham and Zakahi (1990) also used this verbal immediacy scale and produced a reliability coefficient of .92. However, in the present study, three items ("gets into discussions based upon something a student brings up even when this doesn't seem to be part of his/her lecture plan,"; "calls on students to answer questions even if they have not indicated that they want to talk,"; will have discussions about things unrelated to class with individual students or with the class as a whole,") were excluded from the analysis due to poor inter-item reliabilities. The reliability coefficient for the instrument with these items

included was .6958 but improved when removing those three items ($\alpha = .7800$, $M = 34.833$, $SD = 7.9542$).

Data Collection

This study involves one of the researchers collecting data at undergraduate classes at a community college, explaining the study and standard survey protocol regarding participant confidentiality. After signing a consent form, the participants complete the surveys in the classroom and return them to the researcher who is present during the completion.

Data Analysis

The research question for this study can be formally stated as: Is there a marginal relationship/correlation between instructors' nonverbal and verbal immediacy behaviors and student motivation? A multiple linear regression was used to test the relationship between both forms of instructors' immediacy behaviors and student motivation. The researchers first performed a multiple linear regression with instructors' verbal immediacy behaviors and instructors' nonverbal immediacy behaviors as independent variables in the regression model and student motivation as the dependent variable. A Pearson's correlation was also performed with the two forms of immediacy in order to investigate the possibility of collinearity between the variables. Separate linear regressions were also used in order to investigate the contribution of either of the forms of instructor immediacy behaviors with student motivation when the other is removed from the model.

Results

The researchers first performed a multiple linear regression with instructors' verbal immediacy behaviors and instructors' nonverbal immediacy behaviors as independent variables in the regression model and student motivation as the dependent variable. The results indicate that instructors' verbal and nonverbal immediacy behaviors are positively related to student motivation and account for 7.9% of the variance for student motivation ($R^2 = .079$, $p = .016$). Therefore, student motivation is likely to increase when instructors use nonverbal and verbal immediacy behaviors.

A Pearson's correlation also was conducted between instructors' verbal immediacy behaviors and instructors' nonverbal immediacy behaviors in order to test for collinearity between the two independent variables. A significant relationship was found between instructors' nonverbal immediacy behaviors and instructors verbal

immediacy behaviors ($r = .465, p = .000$). This indicates that those instructors who use one form of immediacy behaviors are likely to use the other form as well. Therefore, the researchers tested the relation between each form of instructors' immediacy behaviors separately with student motivation.

As expected due to collinearity both forms of instructors' immediacy behaviors accounted for less variance for student motivation than did the overall model that included both forms of immediacy with student motivation. When only instructors' verbal immediacy behaviors was used in the regression model, it accounted for 6.9% of the variance for student motivation ($R^2 = .069, p = .007$). However, it still indicated that student motivation is likely to increase when instructors use verbal immediacy behaviors. When only instructors' nonverbal immediacy behaviors was used in the regression model it accounted for 4.5% of the variance for student motivation ($R^2 = .045, p = .032$). Thus, instructors who use nonverbal immediacy behaviors also increase the likelihood that their students' motivation will improve.

Discussion

The primary purpose of this study was to investigate the relation among instructors' nonverbal and verbal immediacy behaviors with student motivation within the classrooms of community college math classes. Furthermore, it was aimed at discovering another possible avenue for community college math instructors to increase their students' motivation. The findings in this study help to inform these instructors how to increase their students' motivation.

The research question in this study asked if there was a relationship between instructors' nonverbal and verbal immediacy behaviors and student motivation. A relationship among these variables was found. Both forms of instructor immediacy behaviors were positively related to and account for 7.9% of the variance for student motivation. This finding is consistent with previous research addressing the relationship between instructors' immediacy behaviors and student motivation (Christensen & Menzel, 1998; Ellis, 2004). However, this study is of importance because almost all of the previous research on the relation between instructors' immediacy behaviors and student motivation has been conducted at major research universities (Christensen & Menzel, 1998; Christophel & Gorham, 1995; Elliot & Knight, 2005; Ellis, 2004; Glynn, Aultman, & Owens, 2005; Jaasma & Koper, 1999; Seifert, 2004). In addition, these previous studies have collected data mostly from students in Communication Studies classes. This current study illustrates that the relation between instructors' immediacy behaviors and student motivation exists to some degree in disciplines other than Communication Studies and at institutions other than major research universities.

The results of this work are significant in relation to the mathematics education issues discussed earlier. The literature had noted the positive value of a caring pedagogy, boosting confidence, and indicating the relevance of mathematics to the students' lives. All of these objectives are attained in a classroom where the instructor displays high levels of immediacy behavior. Students are more likely to perceive a caring attitude from an instructor who is friendly and approachable. Student confidence is increased by instructors taking the time to talk to the students and reassure them as they struggle with the subject matter. Our results are consistent with those earlier findings when we indicate that students' motivation is enhanced by immediacy behaviors on the part of instructors. The importance of these issues within mathematics may be even more crucial when we take into account the high levels of math anxiety and the potential for positive instructor behaviors to counter this anxiety.

It is interesting to note that verbal immediacy accounts for more (6.9%) of the variance in student motivation than non verbal immediacy (4.5%). This may be attributed to the nature of the teaching. Mathematics instruction is more closely aligned to verbal instruction and offering frequent spoken reassurance is extremely helpful to struggling students. Assistance in spoken form is very useful during problem solving sessions with poorly motivated students. This may be contrasted with students in Communication Studies who are more likely to be attuned to instructors' non verbal immediacy behaviors.

Previous research has found student motivation to be positively related to student learning (Christophel, 1990; Frymier, 1994). Our study confirms that student motivation in mathematics classes is related to instructor immediacy behaviors and one can then argue that such behaviors may lead to improved student learning of mathematics. Some verbal immediacy behaviors that instructors may use include personal examples, humor, engaging in conversations with students before, after, or outside of class, encouraging students to talk, referring to the class as "we," or "our," asking for students' input, teachers' self-disclosure, addressing students by name, praising students' work, addressing instructors by their first name, and being available for students outside of class if they have any questions (Gorham, 1988). Instructors also can display nonverbal immediacy behaviors such as having eye-contact, using physical gestures, having a relaxed body position, directing body position toward students, smiling, using vocal expressiveness, movement, and proximity (Andersen, 1979).

In the broader context instructors may try to use both forms of immediacy behaviors and inform other instructors to use them as well. For instance, community college

instructors are often responsible for observing other colleagues' classes as they teach and for providing feedback. The instructors observing should take note of how often the instructor uses immediacy behaviors and provides feedback to the student. Furthermore, administrators may address instructor immediacy behaviors when informing faculty members of their teaching obligations at the beginning of the school year during general orientation sessions. They should tell the faculty members that using these particular behaviors can lead to increased students' motivation. Administrators may also use end of the semester evaluations that address how often the instructor uses immediacy behaviors, perhaps using survey instruments similar to those used in this study.

Some limitations exist with this study. The study only had 103 participants and one common instructor. This is a rather small number when trying to generalize the findings to all community college math instructors. The study was conducted only at one community college. Therefore, there may be geographical differences that exist in community colleges in other parts of the country. The issue of student perceptions may also be problematic. Not everyone perceives immediacy behaviors in the same way. Therefore, it may be difficult to accurately inform an instructor specifically what types of immediacy behaviors their students will notice and to what degree.

Future work in this area may involve larger samples and different types of institutions. Other disciplines may also be examined. Modification of the survey items may also yield new insights. More detailed analyses of individual survey items may indicate how particular immediacy behaviors are related to different levels of student motivation. Finally, international comparison in this area will be of interest to both researchers and practitioners.

References

- Anderman, L. (2004). Student motivation across subject-area domains. *Journal of Educational Research, 97*(6), 283-285.
- Andersen, J. F. (1979). Teacher immediacy as a predictor of teacher effectiveness. In D. Nimmo (Ed.), *Communication Yearbook 3* (pp. 543-559). New Brunswick, NJ: Transaction Books.
- Beatty, M., Forst, E., & Stewart, R. (1986). Communication apprehension and motivation as predictors of public speaking duration. *Communication Education, 35*(2), 143-146.

- Beatty, M., & Payne, S. (1985). Is construct differentiation loquacity? A motivational perspective. *Human Communication Research, 11*(4), 605-612.
- Brown, C. H. (1995). Instructor concern: How important is it to remedial and developmental students. *Research and Teaching in Developmental Education, 12* (1), 5-13.
- Chaikin, A., Gillen, B., Derlega, V., Heinen, J., & Wilson, M. (1978). Students' reactions to teachers' physical attractiveness and nonverbal behavior: Two exploratory studies. *Psychology in the Schools, 15*(4), 588-595.
- Christensen, L. J., & Menzel, K. E. (1998). The linear relationship between student reports of teacher immediacy behaviors and perceptions of state motivation, and of cognitive, affective, and behavioral learning. *Communication Education, 47*(1), 82-90.
- Christophel, D. (1990). The relationship among teacher immediacy behaviors, student motivation, and learning. *Communication Education, 39*(4), 323-340.
- Christophel, D., & Gorham, J. (1995). A test-retest analysis of student motivation, teacher immediacy, and perceived sources of motivation and demotivation in college classes. *Communication Education, 44*(4), 292-306.
- Cunha, M., & Cunha, J. (2002). Minimal structures: From the classroom to management structures. *Journal of Management Development, 21*(8), 610-620.
- Deci, E. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology, 18*, 105-115.
- Edkard, J. S. (1995). Correlating attitudes and college majors among undergraduate women. Unpublished Master's thesis, Chadron State College, Nebraska.
- Elliot, J., & Knight, J. (2005). Student motivation: The bottom line. *The Agricultural Education Magazine, 77*(4), 8-10.
- Ellis, K. (2004). The impact of perceived teacher confirmation on receiver apprehension, motivation, and learning. *Communication Education, 53*(1), 1-20.
- Frymier, A. (1994). A model of immediacy in the classroom. *Communication Quarterly, 42*(2), 133-144.
- Frymier, A. B., & Shulman, G. M. (1995). "What's in it for me?": Increasing content relevance to enhance students' motivation. *Communication Education, 44*(1), 40-50.
- Furlich, S. (2004a). The Impact of Leaders' Socialization Behaviors with New Graduate Students. *The Florida Communication Journal, 32*(2), 66-74.
- Furlich, S. (2004b). Collaborative Learning within the Community College Classroom. Panel presentation for The Texas Community College Teacher's Association, Fort Worth, TX, 2004.
- Glynn, S., Aultman, L., & Owens, A. (2005). Motivation to learn in general education programs. *The Journal of General Education, 54*(2), 150-170.

- Gorham, J. (1988). The relationship between verbal teacher immediacy behaviors and student learning. *Communication Education, 37*(1), 40-53.
- Gorham, J., & Zakahi, W. (1990). A comparison of teacher and student perceptions of immediacy and learning: Monitoring process and product. *Communication Education, 39*(4), 354-368.
- Hampton, S., & Reiser, R. (2004). Effects of a theory-based feedback and consultation process on instruction and learning in college classrooms. *Research in Higher Education, 45*(5), 497-526.
- Higbee, J. L. (1996). Ability, preparation, or motivation? *Research and Teaching in Developmental Education, 13* (1), 93-96.
- Weber, K., Martin, M., & Patterson, B. (2001). Teacher behavior, student interest and affective learning: Putting theory to practice. *Journal of Applied Communication Research, 29*(1), 71-90.
- Jaasma, M., & Koper, R. (1999). The relationship of student-faculty out-of-class communication to instructor immediacy and trust and to student motivation. *Communication Education, 48*(1), 41-47.
- Jackson, C. D., & Leffingwell, R. J. (1999). The role of instructors in creating math anxiety in students from kindergarten through college. *Mathematics Teacher, 92*(7), 583-586.
- Keller, J. (1987). Development and use of the ARCS model of instructional design. *Journal of Instructional Development, 10* (3), 2-10.
- Kreps, G. (1990). *Organizational Communication* (2nd ed., p. 155). White Plains, NY: Longman.
- Ma, X. (1997). Reciprocal relationships between attitude toward mathematics and achievement in mathematics. *The Journal of Educational Research, 90* (4), 221-229.
- McCroskey, J., Valencic, K., & Richmond, V. (2004). Toward a general model of instructional communication. *Communication Quarterly, 52*(3), 197-210.
- Middleton, M. J., & Midgley, C. (1997). Avoiding the demonstration of lack of ability: An underexplored aspect of goal theory. *Journal of Educational Psychology, 89* (4), 710-718.
- Middleton, J. A., & Spanias, P. A. (1999). Motivation for achievement in mathematics: Findings, generalizations, and criticisms of the research. *Journal for Research in Mathematics Education, 30*(1), 65-88.
- Miller, N. C. (1999). Motivation theories for developmental mathematics. Retrieved March 6, 2007, from <http://www.austincc.edu/nmiller/AMATYC.html>
- Ovington, J., Diamantes, T., Roby, D., & Ryan, C. (2003). An analysis of prevailing myths regarding tenure and promotion. *Education 123*, 635-637.
- Paas, F., Tuovinen, J., Merrienboer, J., & Darabi, A. (2005). A motivational perspective on the relation between mental effort and performance:

- Optimizing learner involvement in instruction. *Educational Technology Research and Development*, 53(3), 25-34.
- Perricone, J. (2005). No more carrots: Gold stars, grades, and pizza parties sap the love of learning. *NEA Today*, March 2005, 64.
- Pedro, J. D., Wolleat, P., Fennema, E., & Becker, A. D. (1981). Election of high school mathematics by females and males: Attributions and attitudes. *American Educational Research Journal*, 18 (2), 207-218.
- Pintrich, P. R., & Schunk, D. H. (1996). *Motivation in Education*. Englewood Cliffs, NJ: Prentice-Hall.
- Ralph, E. G. (1998). *Motivating Teaching in Higher Education: A Manual for Faculty Development*. Stillwater, OK: New Forums Press, Inc.
- Richardson, R., & Bender, L. (1987). *Fostering Minority Access and Achievement in Higher Education: The Role of Urban Community Colleges and Universities*. San Francisco: Jossey-Bass.
- Richmond, V. (1990). Communication in the classroom: Power and motivation. *Communication Education*, 39(3), 181-195.
- Richmond, V., Gorham, J., & McCroskey, J. (1987). The relationship between selected immediacy behaviors and cognitive learning. In M. McLaughlin (Ed.), *Communication Yearbook* (Chapter 10, pp. 574-590). Beverly Hills, CA: Sage.
- Rinne, C. H. (1998). Motivating students is a percentage game. *Phi Delta Kappan*, 79(8), 620-628.
- Rocca, K. (2004). College student attendance: Impact of instructor immediacy and verbal aggression. *Communication Education*, 53(2), 185-195.
- Sass, E. J. (1989). Motivation in the college classroom: What students tell us. *Teaching of Psychology*, 16(2), 86-88.
- Schunk, D. (1997). Conversation on Motivation. Invited Symposium, College of Education, University of Texas, Austin. October 22, 1997.
- Seifert, T. (2004). Understanding student motivation. *Educational Research*, 46(2), 137-149.
- Sorcinelli, M. (2002). New conceptions of scholarship for a new generation of faculty members. *New Directions for Teaching*, 90, 41-48.
- Thorndike-Christ, T. (1991). Attitudes toward mathematics: Relationships to mathematics achievement, gender, mathematics course-taking plans, and career interests (Unpublished manuscript). Bellingham, WA: Western Washington University. (ERIC Document Reproduction Service No. ED 347066).
- Turner, J., & Patrick, H. (2004). Motivational influences on student participation in classroom learning activities. *Teachers College Record*, 106(9), 1759-1785.

- U. S. Department of Education (1999, 2002). National Center for Education Statistics, 1993 National Study of Postsecondary Faculty. Retrieved March 8, 2007, from <http://nces.ed.gov/>

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