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## Predicting Student Learning: The Roles of Rapport, Immediacy, Learning Alliance, and Citizenship Behavior

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PREDICTING STUDENT LEARNING:  
THE ROLES OF RAPPORT, IMMEDIACY, LEARNING ALLIANCE, AND CITIZENSHIP  
BEHAVIOR

by

SUSAN TALLEY

Under the Direction of Rebecca Ryan

ABSTRACT

Rapport, immediacy, learning alliance, classroom citizenship behavior, and observed classroom citizenship behavior were examined for their prediction of both affective and cognitive learning. The measure of observed classroom citizenship behavior was created for the purposes of the current study. Observed classroom citizenship behavior positively correlated with classroom citizenship behavior. Specifically, the involvement, affiliation, and courtesy subscales correlated with overall classroom citizenship behavior and their respective subscales but not with other citizenship behavior subscales. This suggests that only certain types of citizenship behaviors relate to the engagement or observation of those behaviors. Observed citizenship behavior was also found to be correlated with all other predictor variables as well as both measures of affective learning. Regression analyses revealed that rapport was the only predictor variable that predicted all measures of student learning. This suggests that a harmonious relationship with the instructor is a better predictor of student learning than general friendliness and attentiveness of the instructor, a collaborative bond with the instructor, behavior of the student, or perceptions of other classmates.

INDEX WORDS: Student learning, Professor-student rapport, Learning alliance, Classroom citizenship behavior, Observed classroom citizenship behavior

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A Thesis Submitted to the Graduate Faculty of Georgia Southern University

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## DEDICATION

I would like to dedicate this to my parents, Billy & Yunaë Talley, who instilled in me the importance of hard work and the value of an education.

## ACKNOWLEDGMENTS

I would like to thank Dr. Rebecca Ryan for her mentorship over the past two years. Not only did she provide guidance to complete this study, but she has shown me an abundance of understanding and patience throughout the process. Her encouragement and support has aided in the progression of this research along with the progression of my academic and career goals. She has gone above and beyond to help me develop professionally and has provided me with so many opportunities to become a better instructor and a better researcher. She is a magnificent example of a professor who demonstrates good rapport and builds learning alliances, and I hope I can become an instructor like her.

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## CHAPTER 1

### INTRODUCTION

Learning is the main goal of any class. Therefore, value is found in assessing different variables that may influence and predict student learning. In the current study this assessment included both affective learning and cognitive learning as reflected by the participants' grades. Possible correlations among variables that predict student learning were also assessed. Previous research shows positive correlations between student learning and immediacy, rapport, working alliance, and citizenship behavior (Myers et al., 2016; Rogers 2015; Wilson, Ryan, & Pugh, 2010). But to date, no study has examined the influence of all of these variables on learning in one equation. Many similar studies typically include one student learning measure or only assess one type of student learning. Others are limited to a single course or one type of course. In the current study, we assessed these predictors in terms of how they relate to both affective and cognitive student learning in a variety of courses.

In the following sections, we review the literature pertaining to rapport, immediacy, working alliance, and citizenship behavior. We expanded on these studies by assessing the combined influence of these variables on both affective and cognitive learning, and as noted above, we assessed in a variety of courses rather than a single course. Understanding possible predictors of student learning provides insight for improving instruction in the classroom environment, consequently increasing student learning.

#### **Student Learning**

Student learning has been defined as “the gains in the knowledge or skills that a student possesses” (Bacon, 2016, p. 3). An area of concern within this field of research is the two distinct ways of assessing student learning: cognitive learning and affective learning. Cognitive learning is the amount of knowledge gained or a change in knowledge (Kraiger, Ford, & Salas, 1993). Cognitive learning is often measured with pre- and post-tests, GPA, and/or course grades. Affective learning is how much one feels he or she has learned rather than the actual amount of knowledge gained. Affective learning involves motivation and self-efficacy, which are not included in measures such as course grades. Therefore, perceived learning uses self-report measures of learning based on participants' reflection on how much

they considered they have learned, as demonstrated by the finding of a strong correlation between these self-reported measures and affective learning (Sitzmann et al., 2010). Sitzmann and colleagues found no relationship (no correlation) between perceived learning and actual learning. An accurate assessment of student learning is important to ensure that we understand what variables impact learning. In the current study, both cognitive and affective learning were assessed to provide more insight into how the predictor variables influence learning.

Previous studies have used various means to quantify and calculate cognitive and affective learning. A simple approach is to use the corresponding numbers (e.g., grades, student evaluations, etc.) obtained during data collection. Rogers (2015) collected numerical grades and treated those numbers as a scale ranging from 0 to 100. This simpler approach can also be seen with measures of affective learning, where the corresponding numerical response on a 5-point scale is used in the statistical analyses (Rogers, 2015; Wilson Ryan, 2013; Myers et al., 2016). Frymier and Houser (1999) alternatively converted letter grades to a 4.0 grade scale. Other researchers, such as Micari and Pazos (2012), used final course grades as a measure of learning and converted them to standard scores (i.e., z-scores). Standard scores are especially helpful when comparing data with different ranges, such as a 5-point perceived learning scale and a 100-point final grade scale.

Additional factors that have been shown to positively correlate with different measures of student learning include immediacy (Christophel, 1990), rapport (Wilson & Ryan, 2013), working alliance (Rogers, 2015), and citizenship behavior (Myers et al., 2016). The next step is to understand their relationship with student learning as well as examine the relationship among these factors themselves. Understanding potential links between these various factors will advance our understanding of them and the nature of their impact on student learning.

### **Immediacy**

When an instructor appears relaxed, smiles, and spends time with students, the behaviors convey a message to students that the instructor is actively engaging with them and the class (Andersen, 1986). The use of such behaviors is known as immediacy (e.g., Gorham & Christophel, 1990). Immediacy is

comprised of two parts: verbal and nonverbal behaviors (e.g., Christophel, 1990). Verbal immediacy is comprised of behavior such as use of humor, asking questions, or using personal examples. Nonverbal immediacy includes behavior such as smiling, a relaxed body position, and using vocal expressions. Immediacy, through its influence on student state motivation, is predictive of student affective and cognitive learning (Christophel, 1990). Not only do students typically like instructors who display immediacy, they are also more inclined to work harder and perform better in those classes (Lucas & Bernstein, 2014). Micari and Pazos (2012) found that this holds true even for challenging courses. In their study, confidence and final grades were predicted by a positive professor-student relationship, which included perceiving the professor as approachable. A positive correlation also exists between immediacy and rapport, both of which predicted affective learning and attitudes towards the course and the professor (Wilson, Ryan, & Pugh, 2010).

### **Rapport**

Rapport has been defined as “relation characterized by harmony” (*The Merriam-Webster’s dictionary*, 1997, p. 607). This type of relationship includes key factors such as caring, friendliness, and attentiveness, all mutually exhibited and perceived by both parties (Altman, 1990). The Professor-Student Rapport Scale was developed to assess this construct as it exists in the context of college instruction (Wilson, Ryan, & Pugh, 2010). This scale includes aspects of student engagement to assess rapport in the classroom. Constructs such as immediacy and working alliance have been found to positively correlate with this Professor-Student Rapport Scale (Ryan, Wilson, & Pugh, 2011; Myers et al., 2016). Good rapport between students and professors has also been shown to uniquely predict student attitude towards the course and professor, motivation, classes missed, affective student learning, and final course grades. (Wilson & Ryan, 2013).

The role of rapport within a specific course can be seen in a meta-analysis regarding statistics anxiety, self-efficacy, and student-teacher relationship (Waples, 2016). Through this analysis, the researcher concluded that students who perceived good rapport with their teachers could endure harder

tasks within a statistics course, helping to improve self-efficacy and overcome statistics anxiety to succeed in the course. They also concluded that students are less afraid to ask questions when they feel as though they have a positive relationship with their professor.

### **Learning Alliance**

Typically, working alliance has been applied to the collaborative relationship between an individual and a practitioner in the context of psychotherapy (Bordin, 1979). With this usage, the two key components of the working alliance are the individual as a person who is seeking change and the practitioner as the change agent, or a person who facilitates that change. It was reasoned that this kind of relationship is paralleled in the classroom, with a student as the one who is seeking change through learning, and the instructor as the one fostering learning (Ursano, Kartheiser, & Ursano, 2007). With cooperation between the student and the instructor, effective cognitive and affective student learning can be facilitated, and learning goals can be achieved.

Because most of the established measures for the working alliance focus on interactions in the workplace or interactions between an individual and his or her therapist, another measure had to be developed to assess the collaborative relationship between student and teacher. A self-reported measure for this type of working alliance, known as the Learning Alliance Inventory (LAI) was developed by Rogers (2012, 2015) and then re-examined for validity. Though learning alliance is its own unique construct, it takes other constructs, such as rapport and immediacy, into consideration. In the relationship between students' effort to learn and instructors facilitating the learning, Rogers incorporates aspects of immediacy and rapport, such as a perception of caring and understanding. In order to establish this collaborative bond, a positive perception (immediacy) and relationship (rapport) has to be established first.

Rogers (2015) was able to show that the learning alliance predicted three different measures of student learning: final grade in the class, a 50-item pre- and post-test over the class subject, and a one-item measure of how much the student felt he or she had learned in the course. Rogers also found,

through path analysis, that immediacy and rapport affected the learning alliance, which in turn influenced student learning. Currently, there are no other known studies on additional possible factors that may influence student-professor learning alliance or on the effects of learning alliance in courses other than introductory psychology.

### **Classroom Citizenship Behavior**

Organ (1988) described the concept of organizational citizenship behavior (OCB) as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate, promotes the effective functioning of the organization” (Organ, 1988, p. 4). An example of this behavior is offering coworkers assistance with their own work or running errands for them when it is not required and has no direct benefit. Organ (1997) later expanded the definition to include a series of behaviors, rather than individual actions, that benefit the group by improving organizational effectiveness indirectly. Members of the organization will engage in such unrequired behaviors willingly, without the incentive of immediate reward or gratification, because they know that it benefits the work environment.

It was this definition of OCB that informed the definition and measure of classroom citizenship behavior (CCB). Myers determined that students use citizenship behaviors in the classroom in their interactions with the teacher and other students (Myers 2012; Myers et al., 2016). Also, like the OCB definition, students willingly engage in these typically unrequired behaviors without expectation of compensation. Though the students do not gain an immediate and direct reward, they have a chance to indirectly gain a positive outcome either individually or as a group in the future, specifically learning and a more positive learning environment (Myers et al., 2016; Organ, 1997).

When creating the CCB scale, Myers and colleagues (2016) used OCB factors such as helping and civic virtue to develop the different subscales of CCB (involvement, affiliation, and courtesy). They examined the effect of each subscale on the student learning environment and outcomes; this assessment included classroom perceptions (such as class climate and rapport), student learning, and student interest. To assess instructor rapport, the researchers used a measure of rapport adapted by Frisby and Myers

(2008). To assess class climate perception, the researchers used the Communication Climate Questionnaire (Hays, 1970) as well as the Connected Classroom Climate Inventory (Dwyer et al., 2004). To assess affective learning, the researchers used the revised learning indicator scale (Goodboy et al., 2009). Lastly, to assess state motivation, the researchers used the state motivation scale created by Christophel (1990). Myers and colleagues (2016) found that all three subscales of CCB positively correlated with instructor rapport, class climate perception, affective learning, and state motivation.

### **Observed Classroom Citizenship Behavior**

Concerning the CCB, Myers (2016) pointed out that observing other students engaging in citizenship behavior might influence the student to do the same. This notion has yet to be investigated. Myers and colleagues noted the relationship between “employees’ use of citizenship behavior and their perceptions of their coworkers’ use of citizenship behavior” can be mirrored within the class. Conformity is one theory that might support the notion that if students see other students engage in these behaviors, then they are more likely to do so as well. Aronson (2012) defined conformity as “a change in a person’s behavior... as a result of real or imagined pressure from a person or group of people” (p. 19). Students may feel pressured to engage in CCB when they observe other students engaging in CCB as well. This urge to conform would increase if there is also unanimity. That is, if the majority of the class engages in a particular behavior, the imagined pressure from the class as a whole will increase as well (Aronson, 2012). This perceived use of classroom citizenship behavior by other students will be referred to in this paper as observed classroom citizenship behavior, or OCCB.

To measure OCCB, the CCB scale was modified in the current study such that the items asked about the behaviors exhibited by the classmates rather than the individual taking the assessment. The design of the OCCB scale and its use within this study will be discussed below.

### The Current Study

Previous studies have investigated various combinations of immediacy, rapport, working alliance, and CCB. All of these constructs have been found, either by themselves or in various combinations, to predict some form of student learning (cognitive and/or affective learning). Previous literature has also indicated that many of these constructs are positively correlated with each other, though not always directly. The Professor-Student Rapport Scale and the Immediacy Scale were found to be significantly positively correlated at a level of .64 for professor friendliness, .45 for flexibility, and .70 for nonverbal behaviors (Wilson, Ryan, & Pugh, 2010). An adapted Frisby and Myers (2008) rapport scale was also found to be significantly positively correlated to involvement CCB ( $r = .55$ ), affiliation CCB ( $r = .25$ ), and courtesy CCB ( $r = 0.27$ ) (Myers et al., 2016). Rogers (2015) found significant positive correlations among the Learning Alliance Inventory and both the Professor-Student Rapport Scale (0.63) and the Nonverbal Immediacy Scale (0.88). In the current study, relationships among these variables were examined, and we hypothesized that positive correlations would be found between all of the primary scales and subscales. To date no study has included all these constructs to predict student learning. In light of this deficit, the primary goal of the current study was to determine the relative ability of each construct (along with a fifth construct, Observed Classroom Citizenship Behavior) to predict student learning.

Previous studies have also been limited to just one class or course. The development of the Professor-Student Rapport Scale and the Learning Alliance Inventory asked the participants about an introductory psychology class (Wilson & Ryan, 2013; Rogers, 2015), while the CCB scale assessed introductory communication courses. The current study included a broader approach such that the participants provided information from a variety of courses, thus enhancing generalizability.

The current study also aimed to identify the impact of students' perception of CCB on their own use of CCB, by posing the following research question: Are college students more likely to engage in citizenship behavior if their classmates also engage in the same citizenship behavior? We used a modified

CCB scale to answer this question. We also investigated whether it is predictive of student learning. This is not an established scale with psychometrics, but rather a new scale that includes reworded CCB scale items that assesses what students recall about the classroom citizenship behaviors of their previous fellow students, in order to assess how likely students are to engage in classroom citizenship behaviors if they observe other students engaging in those behaviors. We also examined the subscales within this scale (maintained from the original CCB scale) to assess if observation of peers influences only certain types of citizenship behavior.

In summary, hypothesized that all constructs would significantly contribute to the prediction of all measures of student learning. The extent to which each adds to the prediction is exploratory. We also hypothesized that positive correlations would be found among all of the construct scales and subscales and among the constructs and all the measures of student learning. Also, for OCCB, the following research question was posed: Are college students more likely to engage in citizenship behavior if their classmates engage in citizenship behavior? This was assessed by analyzing the correlations between CCB, OCCB, and their subscales, to see if only certain types of citizenship behaviors are related.

## CHAPTER 2

### METHOD

#### **Participants**

One hundred twenty-four undergraduates (31 men and 93 women) from a southeastern university participated in the study. Participants' ages ranged from 18 to 50 years old ( $M = 19.79$ ,  $SD = 3.97$ ). The sample included 83 White or European American, 31 Black or African American, 3 Hispanic or Latino, 2 Asian, 1 American Indian or Native American, and 4 who reported "Other." The sample included 60 first-year students, 40 sophomores, 16 juniors, and 8 seniors. Their average GPA was 3.21 ( $SD = 0.66$ ).

#### **Materials**

##### **Criterion variables.**

*Cognitive student learning.* To assess actual student cognitive learning, participants reported the final letter grade they received in a previous course. This final letter grade was converted to a 4.0 scale, ranging from 0.0 (for "F") to 4.0 (for "A") (Frymier & Houser, 1999). They also provided the final grade in terms of percentage, which was treated as a scale number ranging from 0 to 100 (Rogers, 2015). These items were included at the end of the demographics questionnaire (see below).

##### *Affective student learning.*

Two different measures of affective learning were used because each one measures different perceptions of affective learning. We used a measure of how much the student felt he or she learned and a measure of how much the student felt he or she could have learned. By using two different measures of affective learning, we can better illustrate which constructs relate to affective learning in general, rather than a specific measure (and therefore a specific component) of affective learning.

*Learning loss.* We assessed learning loss (Richmond, Gorham, & McCroskey, 1987; Christophel, 1990). Students reported how much they learned compared to other classes and how much they think they would have learned if they had the ideal instructor (see Appendix A). The difference in these scores is learning loss and was used as a measure of affective student learning.

**Revised Learning Indicators Scale.** The Revised Learning Indicator Scale, or RLIS, (Frymier & Houser, 1999), was also used to assess affective student learning. It is a self-report, seven-item scale on which participants rate how much they engage in learning (see Appendix B). Items are rated on a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Samples items include “I review the course content” and “I feel I have learned a lot in this class.” No items were reversed scored. The sum of the scores was used as the final value. The reported Cronbach’s alpha is 0.91.

#### **Predictor variables.**

**Immediacy scale.** The immediacy scale (Gorham & Christophel, 1990) is a 23-item measure divided into two subscales based on the two forms of immediacy: verbal (17 items) and nonverbal (6 items). The items are rated on a five-point Likert scale, ranging from zero (*never*) to four (*very often*). Sample items include “Addresses students by name” (verbal) and “Looks at the class while talking” (nonverbal) (see Appendix C). Three items were reversed scored. The sum of the scores was used as the final value. The verbal reliability was reported as 0.92 and the nonverbal reliability was 0.73.

**Professor-Student Rapport Scale.** The brief version of the Professor-Student Rapport Scale (PSRS) is a six-item scale used to measure the student engagement component of rapport (Wilson & Ryan, 2013). Sample items include “I dislike my professor’s class,” (reverse scored) and “My professor encourages questions and comments from students” (see Appendix D). The items are rated on a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Two items were reversed scored. The sum of the scores was used as the final value. The Cronbach’s alpha was reported as 0.92.

**Learning Alliance Inventory.** The Learning Alliance Inventory (LAI) (Rogers, 2012) is an 18-item scale used to measure the working alliance perceived by students in relation to their instructor. It is comprised of three subscales, with six items each (See Appendix E). Sample items include “My teacher knows me” (collaborative bond), “My teacher is experienced” (teacher competency), and “This course will be useful to me in the future” (student investment). The reported Cronbach’s alpha values for each section were 0.97 (collaborative bond), 0.93 (teacher competency), 0.95 (student investment), and 0.96

for the overall scale. The items are rated on a seven-point Likert scale, ranging from one (*not at all*) to seven (*very much*). No items were reversed scored. The sum of the scores was used as the final value.

***Classroom Citizenship Behavior Scale.*** The Classroom Citizenship Behavior scale, or CCB scale (Myers et al., 2016) is a 23-item self-reporting measure of the use of the three different types of citizenship behavior in the classroom. Each item was rated on a five-point Likert scale, ranging from 0 (*never*) to 4 (*very often*). It is comprised of three subscales: Involvement (ten items), affiliation (nine items), and courtesy (four items). Sample items include “I actively engage in discussion” (involvement), “I help classmates with homework” (affiliation), and “I show respect towards my classmates” (courtesy) (see Appendix F). The Cronbach’s alpha for each factor was 0.95 (involvement), 0.94 (affiliation), and 0.70 (courtesy). No items were reversed scored. The sum of the scores was used as the final value.

#### **New measure.**

***Observed CCB Scale.*** The CCB scale (Myers et al., 2016) mentioned above was used as the basis for a new measure of observed CCB. For each item from the CCB, participants ranked how often they observed other students engaging in different citizenship behaviors. All 23 items from the CCB scale was reworded in this manner (see Appendix G) and each was rated on a five-point Likert scale, ranging from 0 (*never*) to 4 (*very likely*). The Cronbach’s alpha for each factor was 0.95 (involvement), 0.94 (affiliation), and 0.73 (courtesy). No items were reversed scored. The sum of the scores was used as the final value.

**Demographics.** The demographics questionnaire assessed age, gender, year in school, ethnicity, and self-reported GPA. To address the course the participants were referring to when completing the measures, they were asked to provide information about that course; including, the course prefix, the name of the course, time of day, their estimation of the number of students in the course, and the instructor’s name. This form is also where they reported their actual grades (see Appendix H).

#### **Procedure**

An online recruitment system was used to acquire participants. The data were collected on-line, and the participants received a link to the study after signing up. Participants first provided

informed consent. Then they completed the demographics questionnaire. For the second half of the demographics questionnaire, the participants identified the last class for which they had a final exam, during the previous semester. Participants provided information about this course, such as name of the course and course prefix. They reported their final grade in that course, both as a letter grade and as a percentage. Then they completed measures related to other people in the course (OCCB and immediacy). The remaining measures (RLIS, learning loss, rapport, learning alliance, and CCB) were presented to the participants in randomized order to prevent order effects. The participants were then debriefed and told to e-mail the researcher in order to receive credit for participating in the study.

## CHAPTER 3

### RESULTS

All of the measures were found to have adequate reliability as indicated by their Cronbach's alpha values. Table 1 shows the averages and the reliability for the learning indicators scale (affective learning) and the five predictor variables.

#### **Observed Classroom Citizenship Behavior**

The current study utilized a new measure, the Observed Classroom Citizenship Behavior Scale, based on the existing Classroom Citizenship Behavior scale. A research question was posed concerning the relationship between CCB and OCCB. The correlational findings revealed that the overall CCB and OCCB scales are significantly positively related ( $r = .66, p < .01$ ), as seen in Table 2, indicating a relationship between seeing and performing (or vice versa) citizenship behaviors. Each CCB subscale significantly and positively correlated with the respective OCCB subscale at  $p < .01$  (see Table 2), indicating that there is a relationship between the type of citizenship behavior used and the type of citizenship behaviors observed. However, not all CCB and OCCB subscale correlations were significant. The OCCB courtesy subscale was not significantly correlated with the CCB affiliation subscale. The CCB courtesy subscale was significantly related to the overall CCB scale, but not to any other citizenship measure aside from the OCCB courtesy subscale. This further emphasizes the relationship between type of citizenship behavior used and observed, while also indicating that courtesy citizenship behavior has the weakest relationship to other types of citizenship behavior and overall citizenship behavior.

#### **Regressions**

Hierarchical regression analyses were conducted for each of the four learning outcome measures. These included the two measures of cognitive learning (letter grade and percent grade) and the two measures of affective learning (learning loss and learning indicators). Each regression included the five predictor variables. Rapport and immediacy were entered in block one due to the amount of literature supporting these variables as predictors of learning. Learning alliance was entered in block two because it

uses components of rapport and immediacy within its theory. Classroom citizenship behavior was entered in block three because it relates to rapport and immediacy but does not contain these constructs within its theory. Observed classroom citizenship behavior (created for the current study) was entered in block four since it is a new measure.

**Cognitive learning.** Regression statistics for percent grade are displayed in Table 3. The hierarchical regression revealed that rapport and immediacy contributed significantly to the regression model,  $F(2, 121) = 8.39, p < .001$ . This regression model accounted for 12% of the variation. The subsequent models for blocks 2, 3, and 4 were also significant (highest  $p = .002$ ), though they did not result in a significant increment in  $R^2$ . The total model accounted for 16% of the variance in percent grades.

The hierarchical regression for letter grade had similar results, as seen in Table 4. The first regression model with rapport and immediacy, accounted for 9% of the variation and contributed significantly to the regression model,  $F(2, 121) = 6.05, p = .003$ . Again, though the subsequent models for blocks 2, 3, and 4 were also significant (highest  $p = .028$ ), but they did not result in a significant increment in  $R^2$ . The total model accounted for 10% of the variance in letter grade.

For both of the cognitive learning regression models the tolerance was greater than 0.1 (0.29 was the smallest tolerance, found in block 4), and the variance inflation factor (VIF) was less than 10 (3.43 being the largest VIF, found in block 4). Rapport was the only significant  $\beta$ , though negative  $\beta$ s were present that do not correspond with the significant positive correlational findings. The regressions for cognitive learning show that rapport is an important predictor, this will be discussed in the following section (see Figure 1).

**Affective learning.** The hierarchical regression for learning loss also revealed similar results, as displayed in Table 5. The first model was significant,  $F(2, 121) = 36.68, p < .001$ . Rapport and immediacy accounted for 38% of the variance. The subsequent models for blocks 2, 3, and 4 were also

significant (highest  $p < .001$ ), though they did not result in a significant increment in  $R^2$ . The total model accounted for 41% of the variance in learning loss.

The regression statistics for the last criterion variable, learning indicators, are reported in Table 6. The first model was significant,  $F(2, 121) = 17.40, p < .001, R^2 = .22$ . The second model (learning alliance) was also significant,  $F(2, 120) = 13.58, p < .001, R^2 = .25$ , and this model also resulted in a significant increment in  $R^2$  ( $p = .03$ ). This predictor variable explained an additional 3% of the variance. The other 2 models were significant (highest  $p < .001$ ), but they did not result in a significant increment in  $R^2$ . The total model accounted for 25% of the variance in learning indicators.

The tolerance was greater than .10 (0.29 was the smallest tolerance) and the variance inflation factor was less than 10 (3.43 being the largest VIF). The  $\beta$  for Rapport was significant in all 4 of the models. For learning loss, the  $\beta$  for OCCB was significant in the 4<sup>th</sup> model. For learning indicators, the  $\beta$  for LAI was significant in the subsequent models. Again, negative  $\beta$ s were present that do not correspond with the significant positive correlational findings. The regressions for affective learning also revealed that rapport is an important predictor, this will also be discussed in the following section (see Figure 2).

### **Correlations**

Hypothesis 1 stated that positive correlations would be found among the variables. Table 7 shows the correlations between the learning measures and the primary variables. Significant positive correlations were found between learning as indicated by percent grade and rapport, immediacy, and learning alliance but not citizenship behavior or observed citizenship behavior. For learning as indicated by letter grade, significant positive correlations were found with rapport and learning alliance but not immediacy, citizenship behavior, or observed citizenship behavior. For learning as indicated by learning loss (affective learning), significant negative correlations were among all five variables. All of the latter correlations were negative because learning loss measures how much the student believes he or she could have learned, rather than how much they believed they did learn. For learning as indicated by learning indicators (affective learning), significant positive correlations were among all five variables.

Significant correlations were also found between the predictor variables (see Table 2). Each of the five predictor variables used in the subsequent regression analyses correlated with each other. This may have contributed to suppression within the subsequent regression models, leading to an issue with the presence of  $\beta$ s that do not correspond with the correlational findings.

We also examined relationships between the subscales for each of the variables (see Table 8). Significant correlations were also found between most of the subscales of the predictor variables (see Table 8). Exceptions include the affiliation and courtesy subscales of CCB tended to not be significantly related to other constructs and their subscales. This trend was also reflected in correlations with the measures of student learning. Both measures of affective learning were significantly correlated with all predictor variables and subscales except for the affiliation and courtesy subscales for CCB and OCCB. Cognitive learning measures significantly correlated with verbal immediacy but not nonverbal immediacy. Cognitive learning measures were also significantly correlated with the collaborative bond and student investment subscales for learning alliance but not the teacher competency subscale.

## CHAPTER 4

### DISCUSSION

#### **Observed Classroom Citizenship Behavior**

In addition to the significant correlation between CCB and OCCB, each subscale of CCB positively correlated with the respective subscale for OCCB. Besides the fact that each subscale measured the same behavior, there are two possible other explanations for why these correlations occurred, depending on direction of influence. Observing someone engaging in a certain positive behavior may influence one to engage in that same behavior, either due to conformity, perceived social norms, or to fulfill the need to belong (Aronson & Aronson, 2012). If a student observes citizenship behavior in the classroom, that student may engage in such behavior more often. On the other hand, engaging in CCB may cause one to be more aware of CCB in other students, which may also yield a significant positive correlation.

These explanations can also account for differences between the different subscales. Conformity works by engaging in the same behavior (Aronson & Aronson, 2012), meaning that if students observe a certain type of CCB, they will be more likely to engage in that same type of CCB rather than a different type. For instance, observing other students throwing away trash and keeping the classroom clean will likely correlate with students engaging in that same behavior but will less likely correlate with another citizenship behavior, such as engaging in discussion or raising one's hand. This may account for the non-significant correlations between courtesy CCB and most other CCB and OCCB measures (see Table 2). Another possible explanation for the courtesy subscale having few significant correlations is the nature of the behaviors involved. Both affiliation and involvement are directionally oriented, as in there is a person that these behaviors are targeted toward, such as other students or the instructor (Myers et al., 2016). Courtesy is not directionally oriented, so in terms of communicating respect, appreciation, or an academic need, courtesy is least likely to convey that message. Also, many instructors incorporate citizenship behavior into their class policies and discuss expected behaviors when reviewing the syllabus (Myers et

al., 2016). The behaviors most commonly incorporated tend to be either involvement or affiliation rather than courtesy. So, though the definition of CCB says that the behaviors are enacted without expectation of reward, some classroom designs promote CCB use by rewarding certain involvement and affiliation behaviors. This can be done by a participation grade or group assignments. Therefore, depending on the class design, a student may be more likely to engage in involvement or affiliation behaviors rather than courtesy behaviors, contributing to the non-significant correlations. Future studies regarding OCCB should consider clarifying the difference between engaging in those behaviors for reward and without expectation of reward.

### **Regressions**

**Cognitive learning.** In the hierarchical regression for variables predicting percent grade, rapport was the only variable that significantly predicted this measure of student learning, and only in the first three models (includes immediacy, rapport, learning alliance, and classroom citizenship behavior) (Table 3). The regression analysis for letter grade showed similar results to that of percent grade (see Table 4). Rapport was the only significant predictor, but only for the first model (rapport and immediacy).

Although correlation assesses the relationship between two variables, hierarchical regression examines the predictive relationship among several variables at once and is therefore influenced by the relationship between these variables. This is a possible reason why immediacy and learning alliance did not add significant predictive variance, though they both highly correlated with percent grade. A lack of unique variance might also be attributed to the nature of these constructs. Immediacy is a component of rapport and learning alliance, and rapport is a component of learning alliance, CCB, and OCCB (Rogers, 2015; Myers et al., 2016).

This relationship among the variables may have also caused suppressor effects, an issue of a predictor only being predictive when another predictor variable is held constant (Field, 2009). So, immediacy may be a good predictor of percent grade, but unless rapport, a closely related construct, is held constant, immediacy loses its significant effect. This issue of suppression may explain why negative

$\beta$ s were present (see Table 3). When two independent variables are positively correlated with each other and are positively correlated with a dependent variable, but one of the independent variables ends up having a negative regression, this is a sign of negative suppression (Maassen & Bakker, 2001). Negative suppression occurs when one of the predictor variables (the suppressor) shares more variance with another predictor variable than with the dependent variable. This relationship causes the other predictor variable to receive a negative  $\beta$ . The negative suppression is best seen in Model 1 of Table 3. Though both rapport and immediacy positively correlated with percent grade, only rapport was a significant predictor of percent grade, and immediacy had a negative  $\beta$ . This negative  $\beta$  is due to percent grade being more highly correlated with rapport ( $r = .34, p < .01$ ) than with immediacy ( $r = .22, p < .05$ ), making rapport the suppressor. Rapport was more highly correlated with immediacy ( $r = .76, p < .01$ ) than with percent grade, making immediacy receive the negative  $\beta$  (see Table 3). These results suggest that rapport is more directly related to letter grade, while other constructs such as learning alliance relate to student learning by another means not yet examined.

Though rapport relates to other constructs such as learning alliance (Rogers, 2015), the other constructs contain other components besides rapport, that may not account for student learning. Rapport is the perceived harmonious relationship, whereas learning alliance expands upon that to include change facilitation, a collaborative bond, and the student's effort. Likewise, our rapport measure focused on the rapport between student and instructor, and the CCB measure involved rapport with instructor, rapport with other students, and general classroom behavior (Myers et al., 2016). Rapport may relate to these other constructs sufficiently to become a suppressor, but it may also relate more directly to student learning than the other constructs that may contain components that do not directly relate to student learning (e.g., CCB possibility relating more to affect in general than affective student learning).

Based on the findings of the importance of rapport in the current study, instructors should encourage student questions, keep a positive body language, and use methods to keep class engaging and enjoyable, such as small group activities.

**Affective learning.** Rapport was a significant predictor for learning loss across all models (see Table 6). This indicated that for learning loss, the construct of rapport is sufficiently unique to maintain significance and is a better predictor of affective learning than cognitive learning. Rapport has previously been found to predict affective learning as well as correlate to other predictors of affective learning, such as class climate, motivation, and interest (Myers et al., 2016; Wilson, Ryan, & Pugh, 2010). One potential explanation for this finding could be attributed to the perception of the instructor being a major factor of learning loss. The second question for learning loss asks about “the ideal instructor” (Christophel, 1990). Rapport may be a major component in what students define as an ideal instructor. Another potential explanation for this finding could be the nature of the rapport assessment. Some of the items in the Professor-Student Rapport Scale ask about the emotional perspective of the class, such as whether or not the student likes the class and believes it to be enjoyable (Wilson & Ryan, 2013). With questions regarding emotion perspective, it is more likely that the scale will relate to affective outcomes, such as learning loss.

The regression analysis for learning loss also showed a significant effect for one other variable: CCB. Interestingly, CCB was not significant in Model 3, which did not include OCCB, but was significant in Model 4, which included OCCB. This is indicative of a suppressor effect caused by the relationship of the predictor variables with OCCB. CCB has a positive  $\beta$  when the  $\beta$  should be negative based on the correlational findings (see Table 7). However, since OCCB relates more to CCB ( $r = .60, p < .01$ ) than to learning loss, ( $r = -.41, p < .01$ ), and CCB has a weaker correlation to learning loss ( $r = -.22, p < .05$ ) than OCCB does, OCCB is causing a negative suppressor effect on CCB. The significant regression for CCB in Model 4 could be caused by the suppressor effect causing a drastic enough increase in the  $\beta$  value, or because of the nature of the relationship between learning loss and citizenship behavior. Learning loss is based on the optimum classroom climate, whereas CCB is based on behaviors to improve the classroom climate. It is possible that a non-optimum classroom climate may prompt more

engagement in CCB from the student as well as the classmates (OCCB) to achieve a better classroom climate (decreasing the amount of perceived learning loss).

Regression analysis for learning indicators revealed rapport and learning alliance to be significant predictors for this measure of affective learning. Affective learning involves motivation and self-efficacy, which are reflective of the student investment component of learning alliance (Rogers, 2012). Because this measure of affective learning involves student engagement in the learning process, constructs involving student engagement (e.g., learning alliance) may become a significant predictor due to the relationship with the student engagement component of affective learning. Likewise, the rapport measure used in this study contains items related to student engagement (Wilson & Ryan, 2013), supporting the notion that student engagement may be related to affect in the learning process. Rapport and learning indicators also share a common affective component, as seen by items describing enjoyment of the class for the measure of rapport (Wilson & Ryan, 2013) and feelings of learning rather than knowledge gained for the measure of learning indicators (Frymier & Houser, 1999). Based on the findings of the importance of rapport in the current study instructors should keep the class engaging by using class activities and encouraging class discussion. Class discussion allows for comments and questions from students, which may increase affective learning by improving both rapport and learning alliance.

### **Correlational Findings**

**Cognitive learning.** Though it was hypothesized that all variables would correlate with all measures of cognitive and affective student learning, Table 8 shows that this prediction was not the case, particularly with the subscales. Rapport, immediacy, and learning alliance were significantly correlated with percent grade. Rogers (2015) also found that learning alliance positively correlated with final grade but did not find a significant correlation between learning alliance and rapport or immediacy. Though different from Rogers' findings, the results of the current study support the theory that rapport and immediacy are first needed to establish the collaborative bond of learning alliance (Rogers, 2015). Rogers found through path analysis that immediacy impacts rapport which in turn impacts learning

alliance. Likewise, since previous literature found that rapport and immediacy correlate with and predict cognitive learning (Wilson & Ryan, 2013; Rogers 2015; Christophel, 1990), the learning alliance should also positively correlate with cognitive learning since the nature of the construct heavily involves immediacy and rapport. The findings in the current study support these predictions (Table 8), further illustrating the relationship between these predictor variables as well as their relationship with cognitive learning. This relationship exists because the construct of learning alliance is built on the mutual goal of achieving student learning (the change being sought), after rapport and immediacy is established by the instructor (the change agent) (Rogers, 2012; Rogers 2015). This connection between constructs leads to a strong relationship between learning alliance and cognitive learning since the collaborative bond involves actively pursuing cognitive learning, and the change agent tends to exhibit behaviors that predict student learning (rapport and immediacy).

Though a significant positive correlation was found between overall immediacy and percent grade, nonverbal immediacy was not significantly correlated with measures of cognitive learning. This also corresponds with Rogers' (2015) findings of no correlation as his measure of immediacy only included nonverbal immediacy. The lack of supporting evidence in this study might be attributed to the nature of nonverbal immediacy. Nonverbal immediacy behaviors, such as smiling and having a relaxed body posture, are more noticeable but may have more of an impact on feelings (affect) towards the teacher and the class (Christophel, 1990) and reflect an emotional component of learning alliance (Rogers, 2015). Nonverbal immediacy relates to the perceptions of caring and understanding within learning alliance rather than the collaborative bond component that focuses on achieving a goal (learning). This relationship between nonverbal immediacy and the affective component of the learning alliance might explain why significant positive correlations were found with both measures of affective learning but not with cognitive learning.

Although rapport, immediacy, and learning alliance correlated with measures of cognitive learning, classroom citizenship behavior (CCB) and observed classroom citizenship behavior (OCCB) did

not. The previous study on classroom citizenship behavior focused more on student perception and used the revised learning indicators scales to measure how much the students felt that they learned and had engaged in their learning process (Myers et al., 2016). Myers and colleagues did not examine cognitive learning but rather focused on affective learning, which incorporates more than just amount of knowledge gained. This finding illustrates that there is a difference between what impacts affective and cognitive learning. Cognitive learning is the amount of knowledge gained, while affective learning is termed as such because it also includes affective aspects, such as motivation, self-efficacy, and satisfaction. Sitzmann and colleagues (2010) found that self-assessments of learning can incorporate affective evaluation outcomes, meaning that such assessments should not be used for cognitive learning since it measures more than just change in knowledge. In the case of CCB and OCCB, it is possible that citizenship behavior does not actually directly relate to student learning but relates more strongly to the affective aspects such as motivation (e.g. Myers et al., 2016).

**Affective learning.** The five predictor variables all significantly correlated with both measures of affective learning (see Table 7), supporting previous findings that rapport, immediacy, learning alliance, and CCB all significantly relate to affective learning (Wilson & Ryan, 2013; Christophel, 1990; Rogers, 2015; Myers et al., 2016).

Learning loss correlations are all negative because learning loss is an affective student learning measure for how much students believe they could have potentially learned rather than how much they did learn. So, a negative total learning loss score is indicative of the student believing that little to no knowledge could have been gained in a more optimal learning environment. The nature of this construct requires students to reflect on two components: the amount of learning in the class compared to other classes as well as whether or not the instructor was ideal (Christophel, 1990). The question of an ideal instructor could lead students to reflect on qualities related to rapport and immediacy, which have previously been shown to be preferred in instructors and correlated with classroom satisfaction (Rogers, 2015; Wilson, Ryan, & Pugh, 2010; Christophel, 1990). Therefore, the optimal learning environment

within learning loss could imply a desire for qualities like rapport, yielding the correlational results that were found.

The revised learning indicators scale measures how the student feels about the class and the material learned, with items such as “I feel I have learned a lot in this class” (Frymier & Houser, 1999, p. 8). This measure also assesses application of the class material, with items such as “I see connections between the course content and my career goals” (p. 8). This affective measure relates to immediacy, which reflects the student’s perception of the instructor as friendly and caring (Christophel, 1990). Learning indicators also relate to rapport, which reflect the student’s harmonious relationship with the instructor and the enjoyment of the class (Wilson, Ryan & Pugh, 2010). The learning alliance involves establishing rapport and immediacy first (Rogers, 2015), indicating that the learning alliance also involves aspects of affect, which may explain the high correlation between learning indicators and learning alliance. Rapport, immediacy, and learning alliance all include a positive perception of the instructor, while rapport and learning alliance also include a positive relationship with the instructor (Wilson & Ryan, 2013). The correlational results for the learning indicator scale may indicate that the perspective of and relationship with the instructor contribute to how much students feel they have learned and benefitted from their classroom experience.

All subscales were also significantly correlated with measures of affective learning, except for the affiliation and courtesy CCB/OCCB subscales (see Table 8). However, involvement was significantly correlated with affective learning. Involvement involves citizenship behaviors directed at the instructor, affiliation involves citizenship behaviors directed at other students, and courtesy involves citizenship behaviors not directed at either students or the instructor (Myers et al., 2016). This result is indicative of the possibility that a positive relationship with the instructor, rather than a positive relationship with other students, plays a more crucial role in student learning. The impact of a positive relationship with the instructor has already been illustrated by the predictive ability of rapport, immediacy, and learning alliance on student learning (Wilson & Ryan, 2013; Christophel, 1990; Rogers, 2015).

It is important to note that affiliation for the OCCB measure were significantly correlated. This could be because OCCB involves the behaviors of the rest of the students in the class, meaning that they do not reflect the student participant, but rather the classroom climate. A previous study found positive correlations among classroom climate and three dimensions of affective learning (Myers et al., 2016).

### **Implications and Applications**

One implication of the current study is the importance of differentiating between cognitive and affective learning. The two types of learning did not correlate with one another, further supporting the notion that they are different constructs (Sitzmann et al., 2010). Furthermore, not all variables significantly correlated with both types of learning. Therefore, improving both affective and cognitive learning can be accomplished through distinct aspects of the classroom experience. For instance, one can improve teacher competency by clearly explaining the requirements for the class and welcoming the input and feedback from students. This will aid in building a better learning alliance which may increase affective learning. Though one predictor variable, rapport, was able to significantly contribute to the prediction of both types of learning. Rapport will be discussed further as a construct that is beneficial for both aspects of student learning.

Another contribution of this study involves understanding the role of affect in learning. Many of the variables relate to feelings towards the instructor and correlated more strongly with affective learning measures than cognitive learning measures. Though making sure students learn the material is important for cognitive learning, keeping affect in mind can also help improve both cognitive and affective learning. This application can be achieved by improving student-teacher relationships and improving perceptions of the instructor, which may lead to more positive perceptions as well as student learning. For instance, instructors can encourage student engagement in citizenship behavior by asking for feedback during class, allowing for class discussion of the material, and allowing students to ask questions during class (Myers et al., 2016). Continuing this encouragement throughout the semester as well as maintaining openness,

friendliness, and understanding, may contribute to increased affective learning as a result of more positive perceptions of the instructor and the class.

Overall, rapport was found to predict all four learning measures. Consequently, by establishing rapport in the classroom, teachers can potentially improve both cognitive and affective learning. It is important to note that both affective and cognitive learning are important factors that will impact student ratings of instruction (Myers et al, 2016; Rogers, 2015; Wilson & Ryan, 2013). Instructors who establish rapport with their students are more likely to see higher levels of both affective and cognitive learning in addition to potentially seeing more positive student ratings of instruction. One way to establish rapport is to keep the impact of body language in mind. Not only is body language a factor of rapport, but it also represents non-verbal immediacy (Wilson & Ryan, 2013; Christophel, 1990). Having a body language that conveys openness and willingness to converse with students will aid in improving rapport. Finally, rapport can increase by making the class more enjoyable and engaging. This can be accomplished through the use of demonstrations, class activities, and other forms of student participation that allow the student to actively engage with the course topic. Another way to build rapport includes encouraging student feedback and questions, as mentioned in the regression section of the discussion.

### **Limitations and Future Directions**

The first step in the creation of an OCCB scale has been completed. The current scale showed excellent reliability as evidenced by a Cronbach's alpha of .94. In the future researchers should further establish this measure and collect enough data to complete a factor analysis. Field (2009) recommends at least 300 participants for this analysis. Further psychometric analyses should also be conducted to verify additional aspect of the reliability and validity of this scale.

Another limitation to the current study was not considering course structure. As mentioned above, CCB behaviors are supposed to be voluntary behaviors, but some instructors may require the behaviors in their classroom (Myers et al, 2016). This requirement of CCB may impact not only the engagement in these behaviors, but the students' perspective of CCB and the instructor. Future studies should account for

course structure to assess for differences in correlations as well as the potential to predict student learning. Course structure may also impact student-teacher interactions (Rogers, 2015), either supporting or hindering the development of learning alliance. Therefore, course structure should also be taken into consideration in future studies assessing learning alliance.

Finally, future studies wishing to examine the relationship between the predictor variables and student learning should consider examining mediator and moderator effects. It is possible that relationships among these variables and learning are the result of a specific variable influencing the strength of the relationship between another variable and learning (moderation) or that a specific variable explains the relationship between another variable and learning (mediation). Future researchers should conduct path analyses between these constructs to improve on the limitations of hierarchical regressions. These analyses may shed more light on the relationships between the constructs studied here and their role in student learning.

## REFERENCES

- Altman, I. (1990). Conceptualizing 'Rapport'. *Psychological Inquiry*, 1(4), 294-297.  
doi:10.1207/s15327965pli0104\_2
- Andersen, J. F. (1986). Instructor nonverbal communication: Listening to our silent messages. *New Directions for Teaching and Learning*, 1986(26), 41-49.
- Bacon, D. R. (2016). Reporting actual and perceived student learning in education research. *Journal of Marketing Education*. 38(1), 3-6. doi:10.1177/0273475316636732
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research & Practice*, 16(3), 252-260. doi:10.1037/h0085885
- Christophel, D. M. (1990). The relationships among teacher immediacy behaviors, student motivation, and learning. *Communication education*, 39(4), 323-340. doi:10.1080/03634529009378813
- Dwyer, K. K., Bingham, S. G., Carlson, R. E., Prisbell, M., Cruz, A. M., & Fus, D. A. (2004). Communication and connectedness in the classroom: Development of the connected classroom climate inventory. *Communication Research Reports*, 21, 264-272.  
doi:10.1080/01463370500090118
- Field, A. (2009). *Discovering Statistics Using SPSS* (3rd ed.). London: Sage.
- Frisby, B. N., & Myers, S. A. (2008). The relationships among perceived instructor rapport, student participation, and student learning outcomes. *Texas Speech Communication Journal*, 33(1), 27-34.
- Frymier, A. B., & Houser, M. L. (1999). The revised learning indicators scale. *Communication Studies*, 50(1), 1-12. doi: 10.1080/10510979909388466
- Goodboy, A. K., Martin, M. M., & Bolkan, S. (2009). The development and validation of the student communication satisfaction scale. *Communication Education*, 58, 372-396.  
doi:10.1080/03634520902755441

- Gorham, J., & Christophel, D. M. (1990). The relationship of teachers' use of humor in the classroom to immediacy and student learning. *Communication Education, 39*(1), 46-62.  
doi:10.1080/03634529009378786
- Hays, E. R. (1970). Ego-threatening classroom communication: A factor analysis of student perceptions. *Speech Teacher, 19*, 43–48. doi:10.1080/03634527009377791
- Kraiger, K., Ford, J. K., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of applied psychology, 78*(2), 311.
- Lucas, S. G., & Bernstein, D. A. (2014). *Teaching psychology: A step-by-step guide*. Psychology Press.
- Maassen, G. H., & Bakker, A. B. (2001). Suppressor variables in path models: Definitions and interpretations. *Sociological Methods & Research, 30*(2), 241-270.
- The Merriam-Webster dictionary*. (1997). Springfield: Merriam-Webster.
- Micari, M., & Pazos, P. (2012). Connecting to the professor: Impact of the student–faculty relationship in a highly challenging course. *College Teaching, 60*(2), 41-47.  
Doi:10.1080/87567555.2011.627576
- Myers, S. A. (2012). Students' perceptions of classroom group work as a function of group member selection. *Communication Teacher, 26*(1), 50-64. doi:10.1080/17404622.2011.625368
- Myers, S. A., Goldman, Z. W., Atkinson, J., Ball, H., Carton, S. T., Tindage, M. F., & Anderson, A. O. (2016). Student civility in the college classroom: Exploring student use and effects of classroom citizenship behavior. *Communication Education, 65*(1), 64-82.  
doi:10.1080/03634523.2015.1061197
- Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington, MA: Lexington.
- Organ, D. W. (1997). Organizational citizenship behavior: It's construct clean-up time. *Human performance, 10*(2), 85-97. doi:10.1207/s15327043hup1002\_2

- Richmond, V. P., Gorham, J. S., & McCroskey, J. C. (1987). The relationship between selected immediacy behaviors and cognitive learning. *Annals of the International Communication Association, 10*(1), 574-590.
- Rogers, D. T. (2012). The learning alliance inventory: Instrument development and initial validation. *International Journal for the Scholarship of Teaching and Learning, 6*(1), 9.
- Rogers, D. T. (2015). Further validation of the learning alliance inventory: The roles of working alliance, rapport, and immediacy in student learning. *Teaching Of Psychology, 42*(1), 19-25. doi:10.1177/0098628314562673
- Ryan, R. G., Wilson, J. H., & Pugh, J. L. (2011). Psychometric characteristics of the professor–student rapport scale. *Teaching of Psychology, 38*(3), 135-141. doi:10.1177/0098628311411894
- Sitzmann, T., Ely, K., Brown, K. G., & Bauer, K. N. (2010). Self-assessment of knowledge: A cognitive learning or affective measure?. *Academy of Management Learning & Education, 9*(2), 169-191.
- Ursano, A. M., Kartheiser, P. H., & Ursano, R. J. (2007). The teaching alliance: A perspective on the good teacher and effective learning. *Psychiatry: Interpersonal And Biological Processes, 70*(3), 187-194. doi:10.1521/psyc.2007.70.3.187
- Waples, J. A. (2016). Building emotional rapport with students in statistics courses. *Scholarship of Teaching and Learning in Psychology, 2*(4), 285. doi:10.1037/stl0000071
- Wilson, J. H., & Ryan, R. G. (2013). Professor–Student Rapport Scale Six Items Predict Student Outcomes. *Teaching of Psychology, 40*(2), 130-133. doi:10.1177/0098628312475033
- Wilson, J. H., Ryan, R. G., & Pugh, J. L. (2010). Professor-student rapport scale predicts student outcomes. *Teaching Of Psychology, 37*(4), 246-251. doi:10.1080/00986283.2010.510976

APPENDIX A  
LEARNING LOSS SCALE

Please rate the following items in relation to the class you identified at the start of the study.

0      1      2      3      4      5      6      7      8      9

Nothing

More Than

Any Other Class

1. On a scale of 0-9, how much did you learn in the class, with 0 meaning you learned nothing and 9 meaning you learned more than in any other class you've had. \_\_\_\_\_
2. How much do you think you could have learned in the class had you had the ideal instructor?  
\_\_\_\_\_

Remember to answer each item as it pertains to the class you took last semester, which you identified at the beginning of the study.

## APPENDIX B

## REVISED LEARNING INDICATORS SCALE

Please rate the following items in relation to yourself during the class you identified at the start of the study.

1      2      3      4      5

Strong Disagree

Strongly Agree

1. I like to talk about what I'm doing in this class with friends and family. \_\_\_\_\_
2. I explain course content to other students. \_\_\_\_\_
3. I think about the course content outside the class. \_\_\_\_\_
4. I see connections between the course content and my career goals. \_\_\_\_\_
5. I review the course content. \_\_\_\_\_
6. I compare the information from this class with other things I have learned. \_\_\_\_\_
7. I feel I have learned a lot in this class. \_\_\_\_\_

Remember to answer each item as it pertains to the class you identified at the beginning of the study.

## APPENDIX C

## IMMEDIACY SCALE

Please rate the following items in relation to the instructor for the class you identified at the start of the study.

0      1      2      3      4

Never

Very Often

1. Uses personal examples or talks about experiences she/he has had outside of class. \_\_\_\_\_
2. Asks questions or encourages students to talk. \_\_\_\_\_
3. Gets into discussions based on something a student brings up even when it doesn't seem to be part of his/her lecture plan. \_\_\_\_\_
4. Uses humor in class. \_\_\_\_\_
5. Addresses students by name. \_\_\_\_\_
6. Addresses me by name. \_\_\_\_\_
7. Gets into conversations with individual students before or after class. \_\_\_\_\_
8. Has initiated conversations with me before, after, or outside of class. \_\_\_\_\_
9. Refers to class as "our" class or what "we" are doing. \_\_\_\_\_
10. Provides feedback on my individual work through comments on papers, oral discussions, etc.  
\_\_\_\_\_
11. Calls on students to answer questions even if they have not indicated that they want to talk. \_\_\_\_\_
12. Asks how students feel about an assignment, due date, or discussion topic. \_\_\_\_\_
13. Invites students to telephone or meet with him/her outside of class if they have a question or want to discuss something. \_\_\_\_\_
14. Asks questions that solicit viewpoints or opinions. \_\_\_\_\_
15. Praises students work, actions, or comments. \_\_\_\_\_

16. Will have discussions about things unrelated to class with individual students or with the class as a whole. \_\_\_\_\_
17. Is addressed by his/her first name by students. \_\_\_\_\_
18. Gestures while talking to class. \_\_\_\_\_
19. Uses monotone/dull voice while talking to class. \_\_\_\_\_
20. Looks at the class while talking. \_\_\_\_\_
21. Smiles at the class as a whole, not just individual students. \_\_\_\_\_
22. Has a very tense body position while talking to the class. \_\_\_\_\_
23. Moves around the classroom while teaching. \_\_\_\_\_

Remember to answer each item as it pertains to the instructor of the class you identified at the beginning of the study.

## APPENDIX D

## PROFESSOR-STUDENT RAPPORT SCALE

Please rate the following items in relation to the class you identified at the start of the study.

1      2      3      4      5

Strong Disagree

Strongly Agree

1. My professor encourages questions and comments from students. \_\_\_\_\_
2. I dislike my professor's class. \_\_\_\_\_
3. My professor makes class enjoyable. \_\_\_\_\_
4. I want to take other classes taught by my professor. \_\_\_\_\_
5. My professor's body language says, "Don't bother me" \_\_\_\_\_
6. I really like to come to class. \_\_\_\_\_

Remember to answer each item as it pertains to the instructor of the class you identified at the beginning of the study.

## APPENDIX E

## LEARNING ALLIANCE INVENTORY

Please rate the following items in relation to the class you identified at the start of the study.

- |  |            |   |   |   |   |   |   |           |
|--|------------|---|---|---|---|---|---|-----------|
|  | 1          | 2 | 3 | 4 | 5 | 6 | 7 |           |
|  | Not at all |   |   |   |   |   |   | Very Much |
1. My teacher knows me. \_\_\_\_\_
  2. My teacher and I have connected. \_\_\_\_\_
  3. My teacher and I have formed a good working relationship. \_\_\_\_\_
  4. My teacher understands me. \_\_\_\_\_
  5. My teacher genuinely cares about me. \_\_\_\_\_
  6. My teacher and I work well together. \_\_\_\_\_
  7. My teacher is knowledgeable about the course material. \_\_\_\_\_
  8. My teacher is experienced. \_\_\_\_\_
  9. My teacher is actively engaged in this course. \_\_\_\_\_
  10. My teacher welcomes all student input and feedback. \_\_\_\_\_
  11. My teacher treats students fairly. \_\_\_\_\_
  12. My teacher has clearly explained the things I'm required to do in this course. \_\_\_\_\_
  13. This course will be useful to me in the future. \_\_\_\_\_
  14. This course is worthwhile. \_\_\_\_\_
  15. I want to learn about the topics that my teacher selected for this course. \_\_\_\_\_
  16. The goals for this course are a good fit for my needs. \_\_\_\_\_
  17. I enjoy doing the required tasks for this course. \_\_\_\_\_
  18. The things we are doing in this course are helping me learn. \_\_\_\_\_

Remember to answer each item as it pertains to the class you identified at the beginning of the study.

## APPENDIX F

## CLASSROOM CITIZENSHIP BEHAVIOR SCALE

Please rate the following items in relation to yourself during the class you identified at the start of the study.

- |     | 0   | 1 | 2 | 3 | 4          |
|-----|---|---|---|---|------------|
|     | Never   |   |   |   | Very Often |
| 1.  | I raise my hand. _____  |   |   |   |            |
| 2.  | I actively engage in discussion. _____                                      |   |   |   |            |
| 3.  | I apply course material to real-life scenarios. _____                       |   |   |   |            |
| 4.  | I engage in conversations with my instructor. _____                         |   |   |   |            |
| 5.  | I volunteer to demonstrate something in front of my classmates. _____       |   |   |   |            |
| 6.  | I participate in class without being asked. _____                           |   |   |   |            |
| 7.  | I ask questions during class. _____   |   |   |   |            |
| 8.  | I answer questions when asked by my instructor. _____                       |   |   |   |            |
| 9.  | I provide examples when my instructor asks. _____                           |   |   |   |            |
| 10. | I provide positive feedback during class. _____                             |   |   |   |            |
| 11. | I work with my classmates to create study guides. _____                     |   |   |   |            |
| 12. | I hang out with my classmates outside of class. _____                       |   |   |   |            |
| 13. | I participate in study groups. _____  |   |   |   |            |
| 14. | I go to lunch or dinner with my classmates. _____                           |   |   |   |            |
| 15. | I help my classmates with homework. _____                                   |   |   |   |            |
| 16. | I meet with my classmates outside of class to study. _____                  |   |   |   |            |
| 17. | I develop relationships with my classmates. _____                           |   |   |   |            |
| 18. | I ask my classmates if they want to form study groups before an exam. _____ |   |   |   |            |
| 19. | I attend class-related extracurricular activities with my classmates. _____ |   |   |   |            |

20. I throw away trash to keep the classroom clean. \_\_\_\_\_
21. I hold the door for my classmates when entering or leaving the classroom. \_\_\_\_\_
22. I complete course evaluations. \_\_\_\_\_
23. I show respect toward my classmates. \_\_\_\_\_

Remember to answer each item as it pertains to the class you identified at the beginning of the study.

## APPENDIX G

## OBSERVED CLASSROOM CITIZENSHIP BEHAVIOR SCALE

Please rate the following items in relation to other students in the class you identified at the start of the study.

0      1      2      3      4

Never

Very Often

1. It was common for other students to raise their hands in class. \_\_\_\_\_
2. It was common for other students to actively engage in discussion. \_\_\_\_\_
3. It was common for other students to apply course material to real-life scenarios. \_\_\_\_\_
4. It was common for other students to engage in conversations with our instructor. \_\_\_\_\_
5. It was common for other students to volunteer to demonstrate something in front of our classmates.  
\_\_\_\_\_
6. It was common for other students to participate in class without being asked. \_\_\_\_\_
7. It was common for other students to ask questions during class. \_\_\_\_\_
8. It was common for other students to answer questions when asked by the instructor. \_\_\_\_\_
9. It was common for other students to provide examples when the instructor asks. \_\_\_\_\_
10. It was common for other students to provide positive feedback during class. \_\_\_\_\_
11. It was common for other students to work with our classmates to create study guides. \_\_\_\_\_
12. It was common for other students to hang out with each other outside of class. \_\_\_\_\_
13. It was common for other students to participate in study groups. \_\_\_\_\_
14. It was common for other students to go to lunch or dinner with other classmates. \_\_\_\_\_
15. It was common for other students to help our classmates with homework. \_\_\_\_\_
16. It was common for other students to meet with our classmates outside of class to study. \_\_\_\_\_
17. It was common for other students to develop relationships with our classmates. \_\_\_\_\_

18. It was common for other students to ask our classmates if they want to form study groups before an exam. \_\_\_\_\_
19. It was common for other students to attend class-related extracurricular activities with our classmates. \_\_\_\_\_
20. It was common for other students to throw away trash to keep the classroom clean. \_\_\_\_\_
21. It was common for other students to hold the door for our classmates when entering or leaving the classroom. \_\_\_\_\_
22. It was common for other students to complete course evaluations. \_\_\_\_\_
23. It was common for other students to show respect toward our classmates. \_\_\_\_\_

Remember to answer each item as it pertains to the class you identified at the beginning of the study.

APPENDIX H  
DEMOGRAPHICS

Your Gender \_\_\_\_\_

Your Ethnicity \_\_\_\_\_

Your Age \_\_\_\_\_ Years

Number of years you have attended college \_\_\_\_\_

Class standing (circle one): First-Year    Sophomore    Junior    Senior

What is your current GPA? \_\_\_\_\_

For the class you were thinking about during the surveys, what is the course prefix? \_\_\_\_\_

What is the name of this course? \_\_\_\_\_

What time of day does the course start? (Will have a drop down menu with different time ranges)

Approximately how many students are in the course? \_\_\_\_\_

What is the instructor's name? \_\_\_\_\_

What was your final course letter grade in this class? \_\_\_\_\_ (A, B, C, D, or F)

What was this in terms of the percentage? \_\_\_\_\_ (for example – 87% or 73%)

Table 1

*Averages and Reliability*

Measure	<i>M</i>	<i>SD</i>	Cronbach's $\alpha$
Learning Indicators (affective learning)	24.94	7.17	.91
Rapport	22.22	6.34	.92
Immediacy	76.35	19.58	.93
Learning Alliance	83.08	26.11	.95
Citizenship Behavior	66.03	19.00	.92
Observed Citizenship Behavior	66.25	19.57	.94

Table 2

*Descriptive Statistics and Correlations among OCCB and CCB*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. OCCB	66.25	19.57	-						
2. OCCB – I.	29.33	10.94	.87**	-					
3. OCCB – A.	22.29	9.48	.83**	.48**	-				
4. OCCB – C.	14.63	3.50	.63**	.42**	.45**	-			
5. CCB	66.03	19.00	.60**	.53**	.53**	.26**	-		
6. CCB – I.	27.21	11.77	.48**	.55**	.29**	.21*	.83**	-	
7. CCB – A.	21.29	10.56	.50**	.32**	.62**	.13	.79**	.35**	-
8. CCB – C.	17.53	2.86	.15	.05	.09	.40**	.30**	.11	.14

Note. \* $p < .05$ , \*\* $p < .01$ .

OCCB = Observed Classroom Citizenship Behavior; CCB = Classroom Citizenship Behavior; I. = Involvement; A. = Affiliation; C. = Courtesy

Table 3

*Summary of Hierarchical Regression Analysis for Variables Predicting Percent Grade (N = 124)*

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Rapport	.70	.22	.41**	.55	.27	.32*	.56	.27	.33*	.53	.27	.31
Immediacy	-.05	.07	-.09	-.07	.08	-.13	-.07	.08	-.13	-.01	.08	-.03
LAI				.06	.06	.15	.07	.06	.17	.09	.07	.21
CCB							-.02	.06	-.04	.03	.06	.05
OCCB										-.13	.07	-.24

Note.  $R^2 = .12^{**}$  for Step 1;  $\Delta R^2 = .01$  for Step 2;  $\Delta R^2 = .00$  for Step 3;  $\Delta R^2 = .03$  for Step 4

Note. \* $p < .05$ . \*\* $p < .01$ .

Table 4

*Summary of Hierarchical Regression Analysis for Variables Predicting Letter Grade (N = 124)*

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Rapport	.06	.02	.37**	.05	.03	.28	.05	.03	.28	.05	.03	.27
Immediacy	-.01	.01	-.11	-.01	.01	-.15	-.01	.01	-.15	-.01	.01	-.12
LAI				.01	.01	.16	.01	.01	.16	.01	.01	.17
CCB							.00	.01	.00	.00	.01	.02
OCCB										-.00	.01	-.07

Note.  $R^2 = .09^{**}$  for Step 1;  $\Delta R^2 = .01$  for Step 2;  $\Delta R^2 = .00$  for Step 3;  $\Delta R^2 = .00$  for Step 4

Note. \* $p < .05$ . \*\* $p < .01$ .

Table 5

*Summary of Hierarchical Regression Analysis for Variables Predicting Learning Loss (N = 124)*

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Rapport	-.22	.04	-.62**	-.20	.05	-.56**	-.21	.05	-.59**	-.21	.05	-.60**
Immediacy	.00	.01	.01	.00	.01	.04	.01	.01	.04	.01	.01	.13
LAI				-.01	.01	-.10	-.01	.01	-.16	-.01	.01	-.12
CCB							.02	.01	.13	.02	.01	.20*
OCCB										-.02	.01	-.19

Note.  $R^2 = .37^{**}$  for Step 1;  $\Delta R^2 = .00$  for Step 2;  $\Delta R^2 = .01$  for Step 3;  $\Delta R^2 = .02$  for Step 4

Note. \* $p < .05$ . \*\* $p < .01$ .

Table 6

*Summary of Hierarchical Regression Analysis Predicting Learning Indicators (N = 124)*

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Rapport	.60	.14	.53**	.40	.16	.35*	.39	.17	.35*	.39	.17	.35*
Immediacy	-.03	.05	-.08	-.06	.05	-.16	-.06	.05	-.16	-.06	.05	-.15
LAI				.08	.04	.30*	.08	.04	.29*	.08	.04	.29*
CCB							.01	.04	.02	.01	.04	.02
OCCB										-.00	.04	-.01

Note.  $R^2 = .22^{**}$  for Step 1;  $\Delta R^2 = .03^*$  for Step 2;  $\Delta R^2 = .00$  for Step 3;  $\Delta R^2 = .00$  for Step 4

Note.  $*p < .05$ .  $**p < .01$ .

Table 7

*Descriptive Statistics and Correlations among Major Variables*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Percent Grade	85.71	10.84	-							
2. Letter Grade	3.14	1.05	.90**	-						
3. Learning Loss	.73	2.23	-.14	-.13	-					
4. RLIS	24.94	7.17	-.17	.14	-.43**	-				
5. Rapport	22.22	6.34	.34**	.29**	-.61**	.47**	-			
6. Immediacy	76.35	19.58	.22*	.18	-.46**	.32**	.76**	-		
7. LAI	83.08	26.11	.31**	.27**	-.52**	.47**	.80**	.72**	-	
8. CCB	66.03	19.00	.16	.16	-.22*	.29**	.48**	.40**	.54**	-
9. OCCB	66.25	19.57	.08	.13	-.41**	.29**	.57**	.65**	.63**	.60**

Note. \* $p < .05$ , \*\* $p < .01$ .

RLIS = Revised Learning Indicators Scale; LAI = Learning Alliance Inventory; CCB = Classroom Citizenship Behavior; OCCB = Observed Classroom Citizenship Behavior

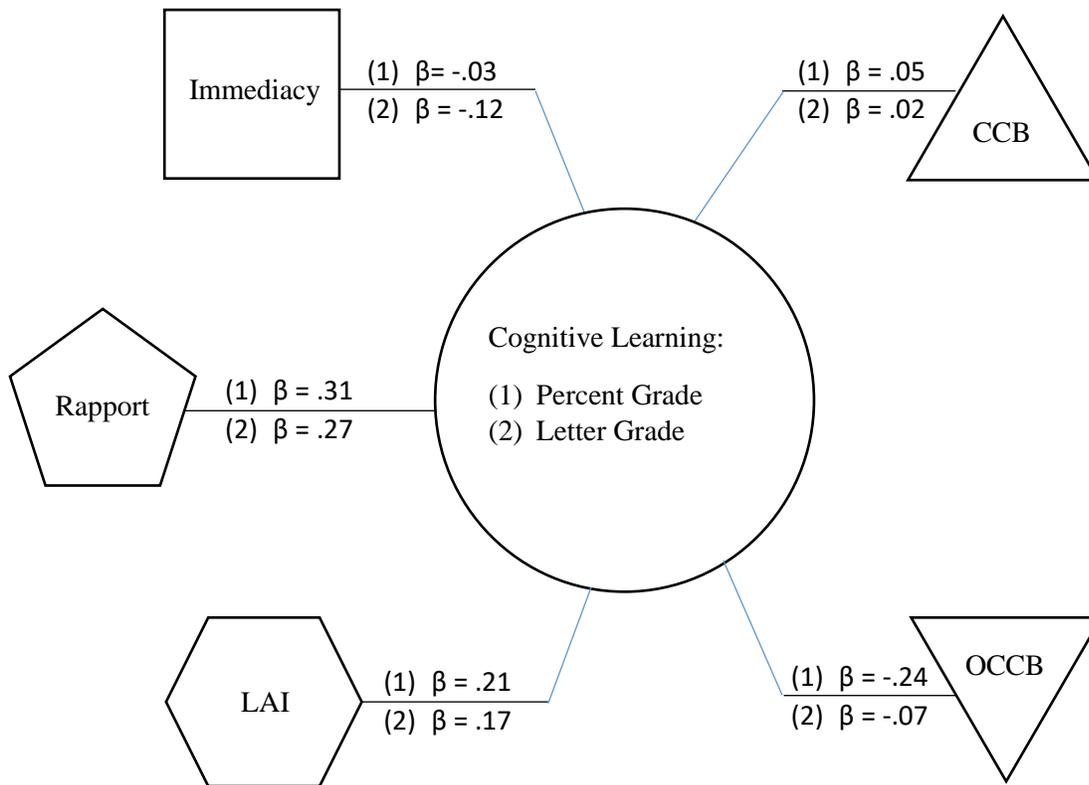
Table 8

*Correlations among Variables*

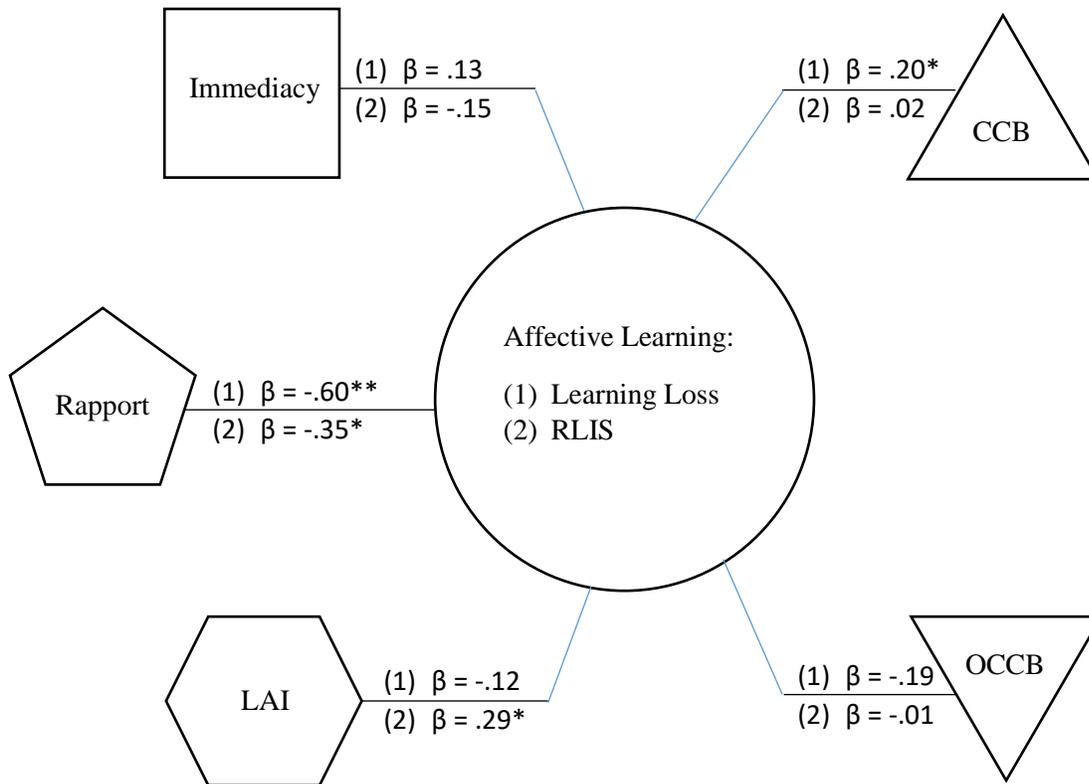
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Percent Grade	-																		
2. Letter Grade	.90**	-																	
3. Learning Loss	-.14	-.13	-																
4. RLIS	.17	.14	-.43**	-															
5. Rapport	.34**	.29**	-.61**	.47**	-														
6. Immediacy	.22*	.18	-.46**	.32**	.76**	-													
7. Immediacy – Verbal	.24**	.19*	-.46**	.34**	.74**	.99**	-												
8. Immediacy - Nonverbal	.12	.10	-.37**	.18*	.64**	.83**	.72**	-											
9. LAI	.31**	.27**	-.52**	.47**	.80**	.72**	.71**	.57**	-										
10. LAI – CB	.33**	.29**	-.38**	.33**	.68**	.67**	.68**	.50**	.87**	-									
11. LAI – TC	.09	.08	-.48**	.35**	.63**	.61**	.59**	.57**	.75**	.49**	-								
12. LAI – SI	.32**	.27**	-.47**	.48**	.69**	.55**	.56**	.42**	.89**	.64**	.53**	-							
13. CCB	.16	.16	-.22*	.29**	.48**	.40**	.41**	.25**	.54**	.55**	.24**	.52**	-						
14. CCB – Inv.	.30**	.24**	-.32**	.32**	.62**	.50**	.52**	.33**	.67**	.73**	.30**	.60**	.83**	-					
15. CCB – Aff.	-.09	-.03	-.01	.10	.14	.11	.13	.03	.17	.16	.00	.22*	.79**	.35**	-				
16. CCB – Cou.	.15	.19*	-.08	.21*	.17	.13	.12	.17	.22*	.11	.34**	.16	.30**	.11	.14	-			
17. OCCB	.08	.13	-.41**	.29**	.57**	.65**	.64**	.52**	.63**	.52**	.50**	.56**	.60**	.48**	.50**	.15	-		
18. OCCB – Inv.	.12	.17	-.41**	.34**	.61**	.73**	.73**	.60**	.65**	.58**	.50**	.56**	.53**	.55**	.32**	.05	.87**	-	
19. OCCB – Aff.	-.03	.02	-.27**	.15	.32**	.33**	.34**	.25**	.36**	.26**	.28**	.37**	.53**	.29**	.62**	.09	.83**	.48**	-
20. OCCB – Cou.	.15	.18*	-.25**	.13	.39**	.42**	.41**	.38**	.48**	.38**	.51**	.36**	.26**	.21*	.13	.40**	.63**	.42**	.45**

Note. \* $p < .05$ , \*\* $p < .01$ .

RLIS = Revised Learning Indicators Scale (Affective Learning); LAI = Learning Alliance Inventory; CB = Collaborative Bond; TC = Teacher Competency; SI = Student Investment; CCB = Classroom Citizenship Behavior; OCCB = Observed Classroom Citizenship Behavior; Inv. = Involvement; Aff. = Affiliation; Cou. = Courtesy



*Figure 1.* Beta values for Model 4 from the cognitive learning regression analyses (percent grade and letter grade). For each predictor variable the first (1) beta value reported represents the results for percent grade and the second (2) beta value reported represents the results for letter grade. None of the predictor variables showed statistical significance in Model 4.



*Figure 2.* Beta values for Model 4 from the affective learning regression analyses (learning loss and RLIS, the revised learning indicators scale). For each predictor variable the first (1) beta value reported represents the results for learning loss and the second (2) beta value reported represents the results for RLIS. Note: \* $p < .05$ , \*\* $p < .01$ .