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ABSTRACT

This paper presents findings of a study that examined relationships between several antecedent variables (student ability, family environment, and school climate) and student academic achievement. The research also examined the role of motivation as a moderator between ability and academic achievement, and as a mediating variable between family environment and academic achievement and between school climate and academic achievement. The study was conducted in a small town in the Southeast United States. A survey questionnaire was administered to 241 high school freshmen, of whom 76 were black, 158 were white, and 7 were classified as "other." Findings indicate that student motivation showed no significant effect on the relationship between ability and academic achievement. However, motivation acted as a moderating variable between ability and academic achievement for black students. The findings suggest that the elements of both school climate and family environment have a stronger direct impact on academic achievement. It is recommended that school-family programs be developed to facilitate student motivation and improve teacher-student relationships. (Contains 28 tables.) (LMI)

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**The Effect of Motivation on the Relationship of  
School Climate, Family Environment, and  
Student Characteristics to Academic Achievement**

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The Effect of Motivation on the  
Relationship of School Climate, Family Environment,  
and Student Characteristics to Academic Achievement

Past school climate literature has historically been related to two traditions: the investigation of school effects and the study of organizational climate (Anderson, 1982). One of the earliest concepts of a school's climate, developed by Halpin and Croft (1962), envisioned climate as the personality of the organization. Anderson (1982), in a review of the research on school climate, utilized an organizational taxonomy to address the issue. She compared a wide range of theoretical discussions, climate instruments, and models and concluded that school climate is the total environmental quality of a school.

Viewing school climate as an antecedent rather than an outcome variable, school-effects research is concerned with the factors that affect academic achievement. This line of research examines cultural elements of climate, such as the norms shared by students (Miskel & Ogawa, 1988). For the purpose of this study, school climate was defined as the characteristics of the total environment that contribute to positive student outcomes, in this case, academic achievement.

The family is the primary social system for children (Hartup, 1979). Four decades of research indicate that the socialization of children is related to at least two variables of parental behavior: parental control and parental support (Rollins & Thomas, 1979). Parental control is defined as parental behavior toward the child which directs the behavior of the child in a manner desirable to the parents. The other construct support is defined as behavior that confirms in the child's mind that he or she is basically accepted. Rollins and Thomas (1979) also have generalized that culturally-

valued child behaviors, including academic achievement, are associated with the supportive behavior of parents toward their children. In an earlier review cited in Rollins and Thomas, high parental support and high parental control were associated with high achievement (Becker, 1964).

Cassidy and Lynn (1991) included a specific factor of the family's socioeconomic status, crowding, as an indicator of how being disadvantaged affects educational attainment. They found that a less physically crowded environment, along with motivation and parental support, were associated with higher educational levels of children. Religiosity as an aspect of the family environment is another independent variable possibly influencing academic achievement. Religious involvement in a family includes affiliation, church attendance, and personal beliefs (Bahr, Hawks, & Wang, 1993).

While general intellectual ability correlates strongly with classroom outcomes, motivational variables, including self-efficacy, may affect students' confidence in their ability to perform the necessary tasks for the desired classroom performance (Horn, Bruning, Schrau, Curry, & Katkanant, 1993). Motivation is referred to as multidimensional: it measures impulsive and deliberate action, is concerned with the internal and external factors, and observes causes for behavior (deCharms & Muir, 1978). Self-efficacy, a part of social learning theory, is a psychological procedure that affects behavior and is a factor in motivation (Bandura, 1977). Recent studies have supported Bandura's findings about the relationship of self-efficacy to academic success (Multon, Brown, & Lent, 1991).

Cassidy and Lynn (1991) explored how family environment impacts motivation and achievement. Perhaps the most interesting finding in their study was that motivation served as a mediating variable between home background, personal characteristics, and educational attainment. In a recent

study of 11-14-year-old children (Grolnick & Slowiaczek, 1994) found that motivation was also a mediating variable between parental involvement and children's school performance. Based on their past studies, they suggested that positive aspects of both the home and school are necessary for children's academic success.

The hypotheses investigated included relationships between several antecedent variables (student ability, family environment, and school climate) and student academic achievement. In addition, the research focused on the role of motivation as a moderator between ability and academic achievement and as a mediating variable between family environment and academic achievement and between school climate and academic achievement.

## METHODOLOGY

This study was conducted in a small town in the Southeast where the presence of a large state university has resulted in a largely bi-modal socioeconomic population. Participants were 241 high school freshmen, of which 76 were Black, 158 were White, and 7 were classified as Other. There were 128 females and 113 males.

The survey questionnaire was administered by the researcher to all subjects at the same time in the school auditorium to insure consistency of instruction (Heppner, Kivlighan, & Wampold, 1992). Because the participants provided their names on the survey questionnaire, confidentiality of individual responses was emphasized. Having the names on the survey allowed for matching survey responses with grade point average.

## Research Instrument

The survey questionnaire consisted of 163 items providing individual and family demographic information and responses to perceptual measures for each of the study variables. Reliabilities for school climate variables ranged from .62 to .84 with most in the .70's. The family environment reliabilities ranged from .71 to .89. The motivation variables reliabilities ranged from .61 to .89.

School Climate

The principle evaluation of school climate was done using the Comprehensive Assessment of School Environment (CASE) instrument. This measure was developed in 1982 by the National Association of Secondary School Principals' Task Force on School Climate (Keefe & Kelly, 1990). The CASE subscales were developed from factor analysis and included the following

subscales: teacher-student relationships, security and maintenance, administration, student academic orientation, student behavioral values, guidance, student-peer relationships, parent and community-school relationships, instructional management, and student activities.

In a review of the CASE instrument, Leong (1992) indicated that the lack of scales to measure the climate for cultural diversity was one of the major problems with the instrument. Therefore, three subscales (racial discrimination, gender discrimination, and sexual harassment) were included to examine possible discriminatory climates. These items were derived from a widely used instrument developed for the military (Landis, Dansby, & Faley, 1993). Based on the literature review presented earlier, there was additional concern regarding other potential school situations. Factor-analyzed subscales were developed in a pilot study for measuring additional school climate areas: gang activity, school safety climate, and cheating.

#### Family Environment

Two subscales (acceptance/involvement and strictness/ supervision) developed by Lamborn, Mounts, Steinberg, and Dornbusch (1991) were used for measuring family environment. Additionally, three items were chosen from a 10-item moral-religious emphasis scale developed by Moos (1974). These items were selected on the basis of behaviors evidenced rather than attitudes or beliefs. The Cassidy and Lynn (1991) measure of crowding (the total number of family members living in a home divided by the number of bedrooms) was added to the instrument.

#### Individual Variables

Two scales, work ethic and competitiveness, were selected from six factors developed by Cassidy and Lynn (1989) to measure the facets of

achievement motivation. The recently revised Harter motivation instrument (Harter, Whitesell, & Kowalski, 1992) was used to measure independently whether a student's motivation was intrinsically or extrinsically oriented. Self-efficacy was measured by the Brookover Self-Concept of Ability Scale (Brookover, 1962), indicating a student's perception of relative scholastic success and the strength of future educational plans.

The Differential Aptitude Test (DAT) (Bennett, Seashore, & Wesman, 1982) was administered to these subjects in the fall of their freshmen year. The scholastic aptitude score of the DAT was used as a measure of student ability.

Because high school grades are generally viewed as indicators of academic success in school (Hagborg, 1992), in this study an overall grade point average from the semester in which the survey was administered was used as the measure of academic achievement.

#### Data Analysis

Moderated regression technique was used to examine the influence of motivation on ability-achievement relationships. Aldag and Stearns (1988) found that conventional forward "moderated regression has generally supplanted subgroup analysis for examination of moderating effects" (p. 269). They cite Cronbach's (1987) finding that alternative procedures (to moderated regression analysis) are unacceptable and problematic. Stone (1988) also cited the significantly increased use of moderated multiple regression (MMR) to detect moderation effects. These researchers' recommendations are heeded here, and the analysis of the possible moderation between ability and achievement by the motivation variables is by traditional moderated regression analysis, using standardized regression coefficients. That is, they are analyzed by first

assessing the significance of ability by regressing it separately against achievement.

The use of mediating variables has long been recognized as an important effect of stimuli on behavior mediated by internal processes (Baron & Kenny 1986). Although ANOVA offers a limited test for mediators, an estimation of a series of regression models provides a more rigorous approach. Three regression equations test for mediation. Baron and Kenny (1986) suggested

first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator. There is no need for hierarchical or stepwise regression or the computation of any partial or semi-partial correlations. (p. 1177)

These three regression equations offer the mediation model's linkages. Three conditions must be met to establish mediation: first, in the first equation, the mediator must be affected by the independent variable; second, in the second equation, the dependent variable must be affected by the independent variable; and third, in the third equation, the dependent variable must be affected by the mediator. The effect of the independent variable on the dependent variable must be less in the third equation than in the second, after the predicated direction of the above conditions hold. If the independent variable has no effect when the mediator is controlled, perfect mediation occurs.

#### Results

One of the primary hypotheses in this research concerned a possible moderating influence of motivation on the relationship between ability and

academic achievement. For each of the five facets of motivation (self-efficacy, work ethic, competitiveness, intrinsic motivation, and extrinsic motivation), ability was first entered into the regression analysis with academic achievement as the dependent variable. In the second step, the motivation facet was entered, and, in the third step, the interaction term (ability X motivation facet) was entered.

Table 1 provides the results of the moderated regression analysis indicating the significance of the  $R^2$  change due to the interaction effects. As evidenced by the lack of significant F's, none of the  $R^2$  changes for these interaction terms was significant. Consequently, in this particular study, it does not appear that motivation moderated the relationship between ability and academic achievement.

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Table 1 about here

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Another research hypothesis concerned a possible mediating effect of motivation on both the relationship between family environment and academic achievement and between school climate and academic achievement.

First, as shown in Table 2, there were two significant correlations between the five dimensions of motivation and grade point average. The correlation of .634 between self-efficacy and grade point average was the strongest, while the correlation of extrinsic motivation and grade-point average was also significant at .208.

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Table 2 about here

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Because Table 2 indicated that only extrinsic motivation and self-efficacy were significantly related to academic achievement, they were the only motivation facets examined in the three mediating regression equations. Table

3 reports the first equation in this analysis where the mediator, motivation, is affected by the independent constructs, school climate and family environment.

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Table 3 about here

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Then, in Table 4, the second regression analysis treats academic achievement as the dependent variable and school climate and the family environment as the independent variables. Here, only 4 out of 19 relationships indicate significance.

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Table 4 about here

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In Table 5, the third regression equation treats academic achievement as the dependent variable, entering the motivational variables simultaneously with both the school climate and family environment variables. In this final step, only 3 out of the 29 relationships show significance. Table 5 provides a summary result of applying the Baron and Kenny (1986) method of determining the mediating effect of motivation between school climate and family environments on academic achievement.

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Table 5 about here

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In meeting the criteria of being significant on all three equations plus having a decreased strength from equation two to equation three, Table 6 indicates that self-efficacy does perform as a mediator in one school climate variable (student-academic) and one family environment variable (crowding).

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Table 6 about here

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## DISCUSSION

The purpose of this study was to investigate the relationship of school climate and family environment on student academic achievement. Additionally, the study included an investigation of the relationship of individual motivation with family environment and school climate, as well as the effects of motivation on the relationships between ability and academic achievement, and between both family environment and school climate on academic achievement. A summary of the findings regarding the major hypotheses follows.

Hypothesis: Motivation will moderate the relationship between ability and academic achievement. Specifically, individuals with greater motivation will have a stronger positive relationship between ability and academic achievement than will individuals having less motivation. The moderated regression analysis showed that motivation did not add a significant amount to the ability and academic achievement relationship. It should be noted, however, that the strong relationship between ability and academic achievement ( $r = .62$ ) does not leave much room for other factors to account for additional variance. Therefore, for additional analysis of motivation as a moderator, the participants were divided into two subgroups, by race, to determine any additional influences of motivation. Moderated regression analysis of the two subgroups did show that motivation acted as a moderating variable between ability and academic achievement for black students but not for white students. This finding might indicate that black students with more motivation have a stronger relationship between their ability and grade point average than do less motivated students.

Hypothesis: Motivation will serve as a mediating variable between both family environment and academic achievement and between school climate and academic achievement. While self-efficacy did serve as a mediating variable between one facet of school climate and academic achievement and one facet of family environment and academic achievement (Table 6), the lack of additional mediating relationships would suggest that the elements of both school climate and family environment have a stronger direct relationship to academic achievement, working through dynamics not measured in this study.

There are certain limitations of this study that need consideration. Because this was not a longitudinal study, determination on the direction of causality cannot be ascertained. Second, the factors of the independent variables were not an exhaustive list. Other factors relating to motivation and achievement, for example, could change the conclusions about the study. Third, the outcome measure was limited. Academic achievement as determined by the grade point average of one semester of work restricts the overall concept of school success. A follow-up study might provide a more reliable picture of academic achievement when five or six semesters of school have been completed. Finally, the results may not be generalized to the populations of various types of schools, such as private schools, large, urban schools, uniraical schools, or, possibly, even schools in other regions or countries.

The results of this study do provide data for educators to utilize as they respond to the demands of educational reform in the local, state, and federal levels. Public school administrators need to recognize, anew, perhaps, the crucial aspect of the teacher-student relationship and the academic success of students.

The finding of a mediating effect of self-efficacy on academic achievement suggests more examination is appropriate on family and school

climates which may increase or decrease this facet of motivation. The growing evidence that spotlights the necessity of strong parenting and positive school environments in the lives of our country's children can no longer be ignored. Schools must utilize current research data and proactively engage parents and teachers in the education of our children.

Often educators complain that students are unmotivated to learn; parents echo this cry and each blame the other for the students' pathetic response to learning. If schools and parents focused on the different parts of academic motivation and developed meaningful programs, across the home and classroom, possible gains could result.

## REFERENCES

- Aldag, R. J., & Stearns, T. M. (1988). Issues in research methodology. Journal of Management, 14, 253-276.
- Anderson, C. S. (1982). The search for school climate: A review of the research. Review of Educational Research, 52, 368-420.
- Bahr, S., Hawks, R., & Wang, G. (1993). Family and religious influences on adolescent substance abuse. Youth and Society, 24, 443-465.
- Bandura, A. (1977). Social learning theory. Englewood Cliffs, NJ: Prentice-Hall.
- Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.
- Becker, W. C. (1964). Consequences of different kinds of parental discipline. In M. L. Hoffman, & L. Hoffman (Eds.), Review of Child Development Research, Volume I. Chicago: University of Chicago Press.
- Bennett, G. K., Seasore, H. G., & Wesman, A. G. (1982). Differential aptitude tests, form V and W, orientation booklet. The Psychological Corporation. Harcourt, Brace & Jovanovich.
- Brookover, W. (1962). Self-concept of ability and school achievement, the relationship of self-images to achievement in junior high school subjects, Michigan State University, College of Education. (ERIC Document Reproduction Service No. ED 002 946)
- Cassidy, T., & Lynn, R. (1989). A multifactorial approach to achievement motivation: The development of a comprehensive measure. Journal of Occupational Psychology, 62, 301-312.
- Cassidy, T., & Lynn, R. (1991). Achievement motivation, educational attainment, cycles of disadvantage and social competence: Some longitudinal data. British Journal of Educational Psychology, 61, 1-12.
- Cronbach, L. (1987). Statistical tests for moderator variables: Flaws in analyses recently proposed. Psychological Bulletin, 102, 414-417.
- deCharms, R., & Muir, M. S. (1978). Motivation: social approaches. Annual Review of Psychology, 29, 91-113.

- Grolnick, W. S., & Slowiaczek, M. L. (1994). Parents' involvement in children's schooling: A multi-dimensional conceptualization and motivational model. Child Development, 65, 237-252.
- Hagborg, W. J. (1992). Grades and motivational orientation among high school students. Journal of Psychoeducational Assessment, 10, 355-361.
- Halpin, A. W., Croft, D. B. (1962). The organizational climate of schools. Washington, DC: U. S. Office of Education. (ERIC Document Reproduction Service No. ED 002 897)
- Harter, S., Whitesell, N.R., & Kowalski, P. (1992). Individual differences in the effects of educational transitions on young adolescent's perceptions of competence and motivational orientation. American Educational Research Journal, 29(4), 777-907.
- Hartup, W. W. (Ed.). (1979). The young child: Reviews of Research. (Vol. 2). Publisher.
- Heppner, P. P., Kivlighan, D. M., & Wampold, B. E. (1992). Research design in counseling. Pacific Grove, CA: Brooks/Cole Publishing Co.
- Horn, C., Bruning, R., Schraw, G., Curry, E., & Katkanant, C. (1993). Paths to success in the college classroom. Contemporary Educational Psychology, 18, 464-478.
- Keefe, J. W., & Kelley, E. A. (1990). Comprehensive assessment and school improvement. NASSP Bulletin. 54-63.
- Lamborn, S. D., Mounts, N. S., Steinberg, L., & Dornbusch, S. M. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. Child Development, 62, 1049-1065.
- Landis, D., Dansby, M. R., & Faley, R. H. (1993). The military equal opportunity climate survey: An example of surveying in organizations. In P. Rosenfeld, J. E. Edwards, & M. D. Thomas (Eds.), Improving organizational studies. Newberry Park, CT: Sage.
- Leong, F. (1985). Review of the comprehensive assessment of school environments. In J. F. Mitchell (Ed.), The Ninth Mental Measurements Yearbook. Lincoln: University of Nebraska Press. (pp. 212-213).
- Miskel, C., & Ogawa, R. (1988). Work motivation, job satisfaction, and climate. In N. Boyan (Ed.), Handbook of research on educational administration. New York: Longman Publisher.
- Moos, R. H. (1974). Family environment scale, Form R. Palo Alto, CA: Consulting Psychologists Press.

- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. Journal of Counseling Psychology, 38, 30-38.
- Rollins, B. C., & Thomas, D. L. (1979). Parental support, power, and control techniques in the socialization of children. In W. R. Burr, R. Hill, F. I. Nye, & I. L. Reiss (Eds.), Contemporary theories about the family, Vol. I, (pp. 317-364). New York: The Free Press, MacMillan
- Stone, E. F. (1991). Moderator variables in research: A review and analysis of conceptual and methodological issues. Research in Personnel and Human Resources Management, 6, 191-229.

Table 1

Moderated Regression Influence of Motivation  
in the Ability-Academic Achievement Relationship

| Source                            | Multiple |                | Change<br>in R <sup>2</sup> | F      | Incremental<br>Change |      |
|-----------------------------------|----------|----------------|-----------------------------|--------|-----------------------|------|
|                                   | R        | R <sup>2</sup> |                             |        | F                     | P    |
| Ability                           | .6153    | .3786          | .3786                       | 108.43 | 108.43                | .000 |
| Self-efficacy                     | .7230    | .5228          | .1442                       | 96.95  | 53.49                 | .000 |
| Ability x<br>self-efficacy        | .7273    | .5289          | .0062                       | 65.87  | 2.30                  | .132 |
| Ability                           | .6153    | .3786          | .3786                       | 108.43 | 108.43                | .000 |
| Work ethic                        | .6295    | .3963          | .0177                       | 58.10  | 5.21                  | .024 |
| Ability x work<br>ethic           | .6344    | .4025          | .0062                       | 39.52  | 1.81                  | .180 |
| Ability                           | .6153    | .3786          | .3786                       | 108.43 | 108.43                | .000 |
| Competitiveness                   | .6171    | .3808          | .0177                       | 54.42  | .63                   | .428 |
| Ability x<br>competitiveness      | .6226    | .3786          | .0062                       | 37.13  | 1.97                  | .152 |
| Ability                           | .6153    | .3786          | .3786                       | 108.43 | 108.43                | .000 |
| Intrinsic motivation              | .6339    | .4019          | .0223                       | 59.46  | 6.90                  | .009 |
| Ability x intrinsic<br>motivation | .6384    | .4076          | .0057                       | 40.36  | 1.70                  | .194 |
| Ability                           | .6153    | .3786          | .3786                       | 108.43 | 108.43                | .000 |
| Extrinsic motivation              | .6328    | .4004          | .0218                       | 59.10  | 6.46                  | .012 |
| Ability x extrinsic<br>motivation | .6367    | .4054          | .0050                       | 40.00  | 1.48                  | .226 |

Table 2

Correlations Between Motivation and Academic Achievement

| Motivation Variables | Grade point average |
|----------------------|---------------------|
| Work ethic           | .132                |
| Competitiveness      | .083                |
| Intrinsic motivation | .126                |
| Extrinsic motivation | .208*               |
| Self-efficacy        | .634**              |

\*  $p < .05$ .

\*\*  $p < .001$ .

Table 4

Equation 2 - Academic Achievement as the Dependent Variable

| Independent variable                 | Dependent variable<br>(academic achievement) |
|--------------------------------------|--|
| School climate                       |  |
| Teacher student relationship         | .238**                                       |
| Security                             | .023   |
| Administration                       | .013   |
| Student-academic orientation         | -.158*                                       |
| Student behavior                     | -.087  |
| Guidance                             | -.011  |
| Student peer relationships           | .148   |
| Parent-community-school relationship | .041   |
| Instructional management             | -.017  |
| Student activities                   | .061   |
| Cheating                             | .131   |
| Safety                               | .183*  |
| Race discrimination                  | -.065  |
| Gangs                                | -.057  |
| Sexual harassment                    | -.049  |
| Family environment                   |  |
| Warmth/acceptance                    | .079   |
| Strictness/supervision               | .118   |
| Religiosity                          | .044   |
| Crowding                             | -.106**                                      |

\*  $p < .01$ .\*\* $p < .001$ .

Table 5

Regression Analysis: Mediating Effect Equation 3 - AcademicAchievement as the Dependent Variable with Motivation VariablesIncluded Simultaneously with the Independent Variable

| Independent variable                 | Dependent variable<br>(academic achievement) |
|--------------------------------------|--|
| <u>Analysis 1</u>                    |  |
| School climate                       |  |
| Teacher student relationship         | .195*  |
| Security                             | .031   |
| Administration                       | .006   |
| Student-academic orientation         | -.069  |
| Student behavior                     | -.028  |
| Guidance                             | -.085  |
| Student peer relationships           | .056   |
| Parent-community-school relationship | .082   |
| Instructional management             | -.005  |
| Student activities                   | -.018  |
| Cheating                             | -.044  |
| Safety                               | .091   |
| Race discrimination                  | -.025  |
| Gangs                                | .011   |
| Sexual harassment                    | -.004  |
| Motivation                           |  |
| Self-efficacy                        | .590**                                       |
| Work ethic                           | -.017  |
| Competitiveness                      | -.003  |
| Intrinsic motivation                 | -.057  |
| Extrinsic motivation                 | .081   |
| <u>Analysis 2</u>                    |  |
| Family environment                   |  |
| Warmth/acceptance                    | -.012  |
| Strictness/supervision               | .056   |
| Religiosity                          | .025   |
| Crowding                             | -.060  |
| Motivation                           |  |
| Self-efficacy                        | .646**                                       |
| Work ethic                           | -.028  |
| Competitiveness                      | -.066  |
| Intrinsic motivation                 | -.001  |
| Extrinsic motivation                 | .092   |

Table 6

Results of Mediating Analysis for Self-Efficacy.Facet of Motivation

| Significant variable         | Second equation | Third equation |
|------------------------------|-----------------|----------------|
| School climate               |                 |                |
| Student academic orientation | -.158*          | -.069          |
| Family environment           |                 |                |
| Crowding                     | .196**          | -.060          |

\* p &lt; .01.

\*\*p &lt; .001.