Abstract: This study presents an overview of relationships among student behaviors, teacher behaviors, peer behaviors, and a student’s scholastic environment. Correlations and multiple regression procedures were utilized to examine the impact of these behaviors on sense of belonging and academic achievement. Using Bandura’s Theory of Triadic Reciprocal Causation, peer behaviors, teacher behaviors, and scholastic environment did impact a student’s sense of belonging. Student behaviors did not predict a student’s sense of belonging, so additional research is needed to explain this outcome. In addition, the three predictor variables did impact a student’s level of academic achievement, except for student behaviors. Finally, sense of belonging did partially mediate the relationship among the three predictor variables and academic achievement.
Introduction

A number of factors influence academic achievement among high school students. One factor is the extent to which students feel a sense of connectedness or relatedness at school (Juvonen, 1996). According to multiple research studies (e.g., Battistich & Horn, 1997; Brendtro, Brokenleg, & Bockern, 1990; Finn, 1989; Goodenow, 1993) students who identify with school and consider it a place where they belong are more motivated to achieve academically. They are also more likely to engage in fewer disruptive behaviors, miss school less often, and perform better academically than students who do not feel a sense of belonging.

Given the empirical linkages between a student’s sense of belonging and his/her achievement-related outputs in school, several different theories regarding the development of sense of belonging have been proposed and tested. One such theory that has received considerable attention over the years was proposed by Juvonen (1996). According to Juvonen (1996), students develop a sense of belonging in school through social relationships with their teachers and peers. Specifically, when students view their relationships with their teachers as supportive, non-conflictual, and fair, they are more likely to feel that they belong in school. Likewise, when students view their relationships with their peers as supportive, non-aggressive, and accepting, they are more likely to feel a sense of belonging in their school.

Although empirical studies have found support for several basic tenants of Jana Juvonen’s (1996) theory (e.g., positive relationships between perceptions of teacher supportiveness and sense of belonging, negative relationships between perceptions of peer aggressiveness and sense of belonging), overall research on Jana Juvonen’s (1996) model has been limited in a number of ways. First, few studies have investigated the impact that student behaviors have on sense of belonging - directly or indirectly through their impact on student-teacher/student-peer relationships (e.g., Ladd, 1990; Wentzel, McNamara, & Caldwell, 2004). Instead, more attention has been paid to teacher behaviors and peer behaviors (or students’ perceptions of such behaviors). This is surprising given the fact that Jana Juvonen (1996) recognizes the significant impact that student behaviors can have on the actions and perceptions of teachers and peers. Second, as noted by Jana Juvonen (2006) herself in a recent review of sense of belonging research, few studies to date have attempted to compare the predictive power of teacher behaviors versus peer behaviors on sense of belonging; instead, research has tended to focus on one or the other. A third limitation of the research on sense of belonging relates to the number and specificity of teacher and peer behaviors investigated. Most studies have investigated a relatively small number of behaviors, many of which have been poorly operationalized (e.g., aggression, bullying) (Juvonen, 2006).

A fourth and final limitation relates to the lack of research on other factors that might impact sense of belonging. As noted previously, Juvonen’s (1996) model focuses on the behaviors of students, peers, and teachers; it does not explicitly recognize the potential impact that other environmental factors within and/or outside the classroom may have on sense of belonging (e.g., the degree to which a student’s school values achievement). Although this limitation should not necessarily be viewed as a criticism of Juvonen’s (1996) model, it does highlight the need to investigate other possible motivational determinants of sense of belonging, particularly considering the theoretical role(s) that such environmental factors play in other important theories of motivation (e.g., social cognitive theory).

Research Questions

This study addressed the following key research questions:

1. Do student behaviors, teacher behaviors, peer behaviors, and a student’s scholastic environment predict a student’s sense of belonging in an academic environment? If so, which of these variables is the strongest predictor?
2. Do student behaviors, teacher behaviors, peer behaviors, and a student’s scholastic environment predict a student’s level of academic achievement? If so, which of these variables is the strongest predictor?
3. Finally, does a student’s sense of belonging mediate relationship(s) among his/her behaviors, the behaviors of his/her peers and
teachers, his/her scholastic environment, and his/her level of academic achievement?

**Purpose**

The primary objective of this study was to investigate the influence of student behaviors, teacher behaviors, peer behaviors, and scholastic environment on sense of belonging. However, given the presumed importance of sense of belonging and related constructs as a determinant of motivation to achieve in general, a secondary objective was to determine which, if any, of these determinants impact academic achievement (a logical outcome of motivated students) through their influence on sense of belonging. To this end, this study addressed several key research questions. The conceptual model that was used to investigate these questions is presented in Figure 1. A description of this model, along with examples of hypotheses to be tested, is provided in the discussion that follows.

Figure 1: Proposed Relationships Among Study Variables of Interest

As shown in Figure 1, student behaviors, teacher behaviors, peer behaviors and scholastic environment were hypothesized to predict sense of belonging. Given the hypothesized impact of these variables on a student’s overall motivation to achieve (through their influence on perceptions of academic support), they were also hypothesized to directly predict academic achievement. In addition, student behaviors, teacher behaviors, peer behaviors and scholastic environment were hypothesized to predict academic achievement through their influence on sense of belonging.

Consistent with the largely exploratory nature of this study, the model presented in Figure 1 made no formal predictions regarding the strength of relationships among specific predictor variables, specific predictor-outcome variable pathways, etc. Nonetheless, based on the entire body of research on these variables, it was reasonable to predict that certain study results were more likely than others. Example predictions, framed within the context of this study’s three objectives, are provided in the discussion that follows.

The first objective of this study was to investigate the influence of the behaviors of students, peers, and teachers, and scholastic environment on students’ sense of belonging. According to Jana Juvonen (1996), although the behaviors of students, peers, and students should all have a significant impact on sense of belonging, student behaviors should have the most significant effect, as it is these behaviors and related cognitive processes of students that influence how information (e.g., feedback) from peers and teachers is absorbed and processed. Further, given the impact of peer pressure and the strong desire to ‘fit in’ with one’s peers in most school settings, it was reasonable to think that both student behaviors and peer behaviors would likely have the most positive influence on sense of belonging.

The second objective was to investigate the effects of the aforementioned behaviors and scholastic environment on academic achievement. As noted previously, most of the behaviors and environmental factors to be studied had been shown to have a positive impact on overall motivation to achieve. For this reason, it was reasonable to think that all three behavior ‘types,’ particularly student behaviors (for reasons noted above) would positively correlate with sense of belonging.

The third and final objective was to investigate the mediating effects(s), if any, of sense of belonging on the relationships among student behaviors, teacher behaviors, peer behaviors, scholastic environment, and academic achievement. From Jana Juvonen’s (1996) perspective, sense of belonging is perhaps the most critical determinant of academic achievement. That is, in order for students to achieve academically, they must first feel accepted by and supported by their classmates and scholastic surroundings. From this perspective, sense of belonging – as a mediator of academic achievement - should be predicted by each of the predictor variables noted in Figure 1 (although perhaps less so by scholastic environment, as it is reasonable to believe based on research that behavioral stimuli might exert a stronger impact on achievement through sense of belonging than environmental stimuli).
Methodology

Three-hundred forty-two (342) high school seniors participated in the study. Each participant attended the same large public high school located in the South. Of these participants, 54.2% were female, 64.5% were white, 29.2% were Black, and 53.2% came from families earning less than $100,000 per year.

The school district was located in a city of approximately 16,436 people. The median household income of the district was $63,744. The median age of the city’s residents was 31.9 years. All participating students had to have completed their junior year in order to participate.

Measures

Measures used in this study included: academic achievement; student, peer, and teacher’s behaviors; environmental factors; and sense of belonging.

Data Analyses

Several sets of statistical analyses were conducted on the data. First, means, standard deviations, and ranges for all study variables (e.g., demographic variables) were computed. Correlations among variables were also computed. Second, multiple regression procedures were used to examine the impact of Student Behaviors, Teacher Behaviors, Peer Behaviors, and Scholastic Environment on Sense of Belonging and Academic Achievement (Table 1). Results of these analyses addressed research questions one and two. Lastly, Roan Baron and David Kenny’s (1986) four-step regression procedure for assessing mediation was applied to the data to determine if Sense of Belonging mediated relationships among the study’s four predictor variables and Academic Achievement. For all regression analyses, resulting F-values, adjusted $R^2$, and B-weights obtained for the overall model and respective steps were put in tabular format.

Results

First, Academic Achievement was regressed onto all the study’s demographic variables (i.e., age, sex, race, and socioeconomic status). Academic Achievement was then regressed onto all the study’s independent variables (i.e., Student Behaviors, Peer Behaviors, Teacher Behaviors, and Scholastic Environment).

Table 1 Zero-Order Correlation Coefficients Among Study Variables

<table>
<thead>
<tr>
<th>Study Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Student Behaviors</td>
<td>.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Peer Behaviors</td>
<td>.75*</td>
<td>(.74)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Teacher Behaviors</td>
<td>.55*</td>
<td>.54*</td>
<td>(.76)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Scholastic Environment</td>
<td>.34*</td>
<td>.30*</td>
<td>.48*</td>
<td>(.78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sense of Belonging</td>
<td>.41*</td>
<td>.46*</td>
<td>.51*</td>
<td>.49*</td>
<td>(.88)</td>
<td></td>
</tr>
<tr>
<td>6. Academic Achievement</td>
<td>.23*</td>
<td>.19*</td>
<td>.17*</td>
<td>.14*</td>
<td>.26*</td>
<td></td>
</tr>
</tbody>
</table>

Note. * p < .01.

As seen in Table 2, Step 1 was statistically significant $F (4, 227) = 4.64, p < .01$, meaning that the group of demographic variables as a whole accounted for a significant amount of variance in Academic Achievement (6%). Specifically, female students reported higher levels of Academic Achievement than male students did ($\bar{x} = 86.2$ and 84.3, respectively). In addition, results indicated a positive linear relationship between students’ self-reported socioeconomic status and Academic Achievement ($r = .20, p < .01$).

Step 2 was also statistically significant $F (4, 223) = 3.89, p < .01$, meaning that the group of four IVs as a whole accounted for a significant amount of variance in Academic Achievement (6%) above and beyond that explained by the demographic variables. However, findings indicated that none of the IVs predicted unique variance. In conclusion, results of this analysis indicated that sex and socioeconomic status were the strongest demographic predictors of Academic Achievement. When controlling for these and all other demographic variables, none of the IVs predicted unique variance in Academic Achievement, although the group of IVs as a whole did predict variance in Academic Achievement.

Sense of Belonging was regressed onto all the study’s demographic variables (i.e., age, sex, race, and socioeconomic status). Sense of Belonging was then regressed onto all the study’s independent variables (i.e., Student Behaviors, Peer Behaviors, Teacher Behaviors, and Scholastic Environment). As seen in Table 2 Step 1 was not statistically significant.
F (4, 222) = 1.83, p > .10), meaning that the group of demographic variables as a whole did not account for a significant amount significant amount of variance in Sense of Belonging (1%). Nonetheless, it should be noted that female students reported higher levels of sense of belonging than male students (x̄ = 3.60 and 3.49, respectively).

Table 2: Regression Results: Predicting Academic Achievement

<table>
<thead>
<tr>
<th>Step</th>
<th>Predictor</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>-.12</td>
<td>.06*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sex</td>
<td>.15*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>-.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Socioeconomic Status</td>
<td>.21*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Student Behaviors</td>
<td>.14</td>
<td>.11*</td>
<td>.06*</td>
</tr>
<tr>
<td></td>
<td>Peer Behaviors</td>
<td>.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher Behaviors</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scholastic Environment</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Beta is the standardized regression coefficient. Increments for variables entered at the ΔR² significance levels are based on F tests for that step. * p < .05.

Step 2 was statistically significant F (4, 218) = 17.96, p < .01), meaning that the group of four IVs as a whole accounted for a significant amount of variance in Sense of Belonging (37%) above and beyond that explained by the demographic variables (Table 3). Specifically, findings indicated that increases in Sense of Belonging corresponded with increases in Peer Behaviors (β = .31, t = 3.75, p < .01), Teacher Behaviors (β = .26, t = 3.69, p < .01), and Scholastic Environment (β = .25, t = 3.91, p < .01).

Table 3: Regression Results: Predicting Sense Of Belonging

<table>
<thead>
<tr>
<th>Step</th>
<th>Predictor</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>.08</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sex</td>
<td>.16*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Socioeconomic Status</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Student Behaviors</td>
<td>-.07</td>
<td>.38*</td>
<td>.37*</td>
</tr>
<tr>
<td></td>
<td>Peer Behaviors</td>
<td>.31*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teacher Behaviors</td>
<td>.27*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scholastic Environment</td>
<td>-.25*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Beta is the standardized regression coefficient. Increments for variables entered at the ΔR² significance levels are based on F tests for that step. * p < .05. ** p < .01.

In conclusion, results of this analysis indicated that sex was the only demographic predictor of Sense of Belonging. When controlling for sex and all other demographic variables, Peer Behaviors, Teacher Behaviors, and Scholastic Environment predicted unique variance in Sense of Belonging. Student Behaviors was the only IV that did not predict unique variance in Sense of Belonging.

The Mediating Influence of Sense of Belonging. According to Roan Baron and David Kenny (1986), four conditions must be met for mediation to be supported. First, the independent variable must predict the dependent variable. Second, the independent variable must predict the mediator. Third, the mediator must predict the dependent variable when controlling for the independent variable. Finally, the mediator must predict the dependent variable when controlling for the independent variable. Not all researchers agree that all four conditions must be met for mediation to be supported (MacKinnon, Fairchild, & Fritz, 2007). However, most researchers do believe that mediation is not possible, or at least not likely, if Steps two, three, and four are not met. This study followed Baron and Kenny’s (1986) approach for investigating mediation (along with prevailing sentiment regarding conditions of mediation held by most researchers).

Results of the aforementioned two regression analyses addressed Baron and Kenny’s (1986) first two conditions (or steps) of mediation. Specifically, findings indicated that, although none of the study’s IVs independently predicted Academic Achievement (condition one), three of the four IVs (Peer Behaviors, Teacher Behaviors, Scholastic Environment) independently predicted Sense of Belonging (condition two).

In response to these findings, several additional regression analyses were conducted. First, to determine if Sense of Belonging predicted Academic Achievement when not controlling for Peer Behaviors (condition three), Academic Achievement was regressed onto all the study’s demographic variables (i.e., age, sex, race, and socioeconomic status), Student Behaviors, Teacher Behaviors, Scholastic Environment and Sense of Belonging (but not Peer Behaviors). Results indicated that Sense of Belonging did indeed predict Academic Achievement when not controlling for Peer Behaviors (β = .23, t = 2.95, p < .01). To determine if Sense of Belonging predicted Academic Achievement when controlling for Peer Behaviors (condition four), Academic Achievement
was again regressed onto all the study’s demographic variables (i.e., age, sex, race, and socioeconomic status), Student Behaviors, Teacher Behaviors, Scholastic Environment, Sense of Belonging and Peer Behaviors. Results indicated that Sense of Belonging again predicted Academic Achievement when controlling for Peer Behaviors ($\beta = .19, t = 2.41, p < .01$). According to Baron and Kenny (1986), these findings supported partial mediation. Specifically, the perceived supportiveness of students’ peers impacts students’ levels of academic achievement in part through its influence on students’ sense of belonging.

To determine if Sense of Belonging predicted Academic Achievement when not controlling for Teacher Behaviors (condition three), Academic Achievement was regressed onto all the study’s demographic variables (i.e., age, sex, race, and socioeconomic status), Student Behaviors, Peer Behaviors, Scholastic Environment and Sense of Belonging (but not Teachers Behaviors). Results indicated that Sense of Belonging did indeed predict Academic Achievement when not controlling for Teacher Behaviors ($\beta = .18, t = 2.34, p < .01$). To determine if Sense of Belonging predicted Academic Achievement when controlling for Teacher Behaviors (condition four), Academic Achievement was again regressed onto all the study’s demographic variables (i.e., age, sex, race, and socioeconomic status), Student Behaviors, Peer Behaviors, Scholastic Environment, Sense of Belonging and Teacher Behaviors. Results indicated that Sense of Belonging again predicted Academic Achievement when controlling for Teacher Behaviors ($\beta = .19, t = 2.40, p < .01$). According to Roan Baron and David Kenny (1986), these findings supported partial mediation. That is, the perceived supportiveness of students’ teachers impacts students’ levels of academic achievement in part through its influence on students’ sense of belonging.

Discussion

The objective of this study was to investigate behavioral and non-behavioral predictors of academic achievement and sense of belonging among high school students. This study was one of the first empirical attempts to simultaneously investigate the effects of multiple behaviors (i.e., student, peer, and teacher behaviors) and environmental factors. Overall, findings indicated that sense of belonging is a moderately strong predictor of academic achievement. Findings also indicated that sense of belonging is predicted by some, but not all, of these behaviors. Finally, findings indicated that none of the independent variables predicted academic achievement independently, although the group of variables as a whole (student behaviors, peer behaviors, teacher behaviors, and scholastic environment) did significantly predict academic achievement.

An analysis of the results of this study coupled with theoretical support is provided in the discussion that follows. Findings regarding the relationship between sense of belonging and academic achievement are discussed first, followed by a discussion of the behaviors that were found to predict sense of belonging. The effects of peer behaviors, teacher behaviors, student behaviors, and scholastic environment on academic achievement are then discussed. Finally, findings regarding the mediating effects of sense of belonging are discussed.
Sense Of Belonging And Academic Achievement

Jana Juvonen (1996) reported that student perceptions of sense of belonging impact their level of academic engagement along with their social behaviors such as level of aggression. In this study, sense of belonging was found to be a moderate, but not strong, predictor of academic achievement. According to Jana Juvonen (1996), one possible reason for this finding relates to the relationship between marginal students who do not feel a strong sense of belonging. In short, marginal students who do not feel a sense of belonging often develop friendships with other marginal students. This relationship has the potential to contribute to a cycle of underperforming in the classroom and/or lack of motivation to achieve altogether.

Related, as noted by Jana Juvonen (1996), although student relationships with their peers can influence sense of belonging in the classroom, students who feel a sense of belonging do not automatically become academically engaged. For example, research indicates that middle school students are more likely to stray from the norms of academic achievement since their peer norms are often the opposite of their parental and/or teacher goals/aspirations (Juvonen & Cadigan, 2002). This study sampled seniors who might have been more mature than middle school students and, therefore, might have already established peer friendships (i.e., the behaviors of their peers might not have been that influential at that point in their educational careers).

Behaviors And Scholastic Environment

Although student behaviors did not predict sense of belonging, peer behaviors, teacher behaviors, and scholastic environment did predict. With respect to peer behaviors, peers play a powerful role in influencing a student’s feelings of belonging as well as his/her motivation to achieve (Goble, 2004; Stephens, 2000). Peer behaviors influence a student’s sense of belonging, as evidenced theoretically by Albert Bandura’s theory of Triadic Reciprocal Causation (1986). In addition, peer behaviors, as perceived by students, should logically affect a student’s behavior. When peers react positively towards other students, other students are more likely going to feel a strong sense of belonging (and vice versa). This sense of belonging, in turn, will likely positively influence their academic achievement (Juvonen, 1996; Bandura, 1986).

This study’s findings regarding teacher behaviors likewise supported Jana Juvonen’s (1996) model. Most notably, teacher support, empathy, fairness, and care are all significant factors that impact a student’s sense of belonging and academic achievement (Farmer, Friedrich, Michalowski, Minch, Suldo & White, 2009). Each of these traits (and related behaviors) was measured by this study’s measure of teacher behaviors. It is therefore logical that teacher behaviors would positively predict sense of belonging.

In addition, teacher support is the most influential quality that stimulates academic motivation and classroom interest in the subject matter (Malecki & Demaray, 2003). Since peer behaviors may pull students in different directions, teacher support is regarded as a more consistent predictor of academic engagement. For example, Allison Ryan and Heather Patrick (2001) found that teachers who encouraged their students to display mutual respect for all of their classmates were the best predictor of student’s level of motivation to achieve. Jana Juvonen’s model (1996) likewise portrays social relationships between teachers and students as the defining factors for students to develop a sense of belonging in school. Therefore, social behaviors among students, separate from academic behaviors, do impact student motivation to achieve. Therefore, future research may entail predicting how social behaviors, apart from academic behaviors, influence student’s sense of belonging among high school students.

With respect to scholastic environment, a student’s scholastic environment influences his/her sense of belonging. Albert Bandura (1989) reiterated that students select social environments that complement their perceived self-efficacious beliefs. Stated differently, students will select scholastic environments where they evaluate their perceived sense of belonging as part of their overall decision to attend. From a logical standpoint, this research makes sense as evident by the variety of school environments that exist around the world in many places, especially in America. Parochial, public, and private schools exist partly for this purpose (Goodenow, 1993).

Related, Albert Bandura’s theory of Triadic Reciprocal Causation (1986) supports the influences of the scholastic environment on sense of belonging. The
interaction of student, teacher, and peer behaviors influences each other and the scholastic environment. Students who do not establish rapport with their teachers and peers often act inappropriately as a result. This inappropriate behavior, in turn, creates tension in the environment. The social environment reciprocally becomes disruptive, as the teacher cannot instruct his/her students due to disciplining the student. The student, if teased by other peers, continues to misbehave, and this misbehavior further creates a hostile learning environment. The hostile learning environment stimulates the teacher to implement more disciplinary actions such as detention, calling of parents, and or a writing assignment, in addition to taking away instruction time. Overall, the misbehaving student and the class of students suffer from lack of instruction time as well as disruptions in learning.

Finally, results of this study indicated no relationship between student behaviors and sense of belonging; that is, students who perceived themselves as highly supportive of their peers and teachers did not report higher levels of belonging than those who perceived themselves as less supportive. As noted previously, one possible explanation relates to the way in which student behaviors were measured. A second explanation relates to the specific number of social behaviors that were measured. Jana Juvonen’s (1996) model references only one student behavior (aggressiveness). Although this study’s student behaviors scale tapped multiple behaviors (both social and academic), there are likely many more positive student social behaviors with the potential to impact sense of belonging. Finally, a third more simple and straightforward explanation is that, relative to the behaviors of teachers and peers, the behaviors of students themselves have little effect on a student’s sense of belonging. Theoretical support for this explanation is provided in part by research on egocentrism in adolescents. In short, many adolescents are egocentric, and some of them might not want to perceive that their personal behaviors contributed to their sense of belonging in any form or fashion (Erikson, 1950). From this perspective, these students might not have wanted to take personal responsibility for their own behaviors as contributing to their perceived sense of belonging (Glasser, 1986; Goble, 2004).

In addition to the fact that three of the four independent variables measured independently predicted sense of belonging, the group of variables as a whole explained 37% of the total variance in sense of belonging (above and beyond that explained by the study’s demographic variables). This is an important finding in that it highlights the need for additional research on other variables that predict sense of belonging. Other factors may actually revolve around student behaviors since there is a strong theoretical basis from researchers like Albert Bandura (1986).

Mediating Effects

One of the objectives of this study was to determine if sense of belonging mediated the relationships among peer behaviors, teacher behaviors, student behaviors, scholastic environment and academic achievement. According to this study, the answer to this question is “Yes.” Specifically, sense of belonging partially mediated relationships among teacher behaviors, peer behaviors, scholastic environment and academic achievement. Sense of belonging did not, however, mediate the relationship between student behaviors and academic achievement, as student behaviors did not exert a significant influence on sense of belonging. For the most part, these findings are consistent with both research and theory on sense of belonging and related outcomes.

With respect to teacher behaviors, the degree to which a teacher is perceived as fair, empathetic, and so forth has a significant impact on a student’s sense of belonging and subsequent academic achievement (Farmer, Friedrich, Michalowski, Minch, Suldo & White, 2009). Each of these traits was measured by this study’s measure of teacher behaviors. It is therefore logical that sense of belonging would mediate the relationship between this measure and academic achievement.

Regarding peer behaviors, as noted previously, peers also play a very powerful role in influencing a student’s feelings of belonging as well as his/her motivation to achieve (Goble, 2004; Stephens, 2000). Peer behaviors influence a student’s sense of belonging, as evidenced theoretically by Albert Bandura’s theory of Triadic Reciprocal Causation (1986). In addition, peer behaviors, as perceived by students, should logically affect a student’s behavior. If/when peers react positively toward other students,
other students are more likely to feel a stronger sense of belonging (and vice versa). This sense of belonging, in turn, will likely positively influence their motivation to achieve academically (Bandura, 1986; Juvonen, 1996).

Albert Bandura’s theory of Triadic Reciprocal Causation (1986) reinforces this peer-sense of belonging relationship. According to Albert Bandura (1986), a student’s behaviors affect the behaviors of his/her peers. Further, as students and peers interact with one another, these behaviors affect personal feelings of belonging. However, Albert Bandura’s theory (1986) does not specifically target how specific student behaviors will affect a student’s feelings of belonging. Similarly, Jana Juvonen (1996) indicates that student behaviors influence their relationships with teachers and peers, but she notes few specific student behaviors. In turn, although sense of belonging is influenced by students’ relationships with their teachers and peers, sense of belonging, as previously mentioned, is inconclusive as a significant factor that impacts a student’s level of academic engagement. In addition, student behaviors did not significantly predict their sense of belonging in this study, which is puzzling as it refutes research supported by Albert Bandura (1986) and Jana Juvonen (1996).

Finally, with respect to scholastic environment, there are a number of environmental factors that have been shown to positively impact sense of belonging. This study measured several of these factors, both general and specific, at the group level. Examples include quality and quantity of textbooks, availability of computer resources and tutoring resources, and the perceived extent to which a school generally values academic achievement (Hirsch, 1996; Kagan, 1990; Tyson & Woodward, 1989). Given the vast amount of research in support of the positive impact of these variables on academic achievement, it is again not surprising that sense of belonging mediated the relationship between these variables (via scholastic environment) and academic achievement.

Conclusion And Practical Implications

This study found several statistically significant predictors of sense of belonging. It also found that most of these same variables significantly predicted academic achievement. This latter finding should be interpreted with caution, as all of the predictor variables measured explained only 6% of the variance in academic achievement above and beyond that explained by the study’s demographic variables. Further, although the group of demographic variables did not statistically predict sense of belonging, females did report a stronger need for sense of belonging than males. This finding is consistent with past research, which indicates that females tend to operate instinctively based on feelings, whereas males tend to operate instinctively based on their rationale (Glasser, 1984).

Findings from this study can help educators better understand the factors that influence students’ feelings of belongingness as well as their level of academic achievement. They can also help future researchers explore other factors that might have an influence on students’ sense of belonging and/or their level of academic achievement. Perhaps most importantly, this study makes an important contribution to the field, as previous studies have not thoroughly investigated the broad range of variables that have the potential to predict sense of belonging and academic achievement among high school students. Moreover, this study’s variables were chosen carefully based on theoretical relevance. For this reason, future researchers in this area should consider using this study’s variables with other factors to predict twelfth grade students’ sense of belonging and academic achievement.

Results of this study fortify the need for educators to pay more attention to students’ feelings of belonging and connectedness in a scholastic environment. Educators can influence students’ feelings of belonging by ensuring that they are treated fairly, showing empathy and concern for their learning, both academically and socially, preventing bullying and/or harassing among students in the scholastic environment, and incorporating other practical strategies (Farmer, Friedrich, Michalowski, Minch, Suldo & White, 2009; Olweus, 1987).

As noted previously, this study found that teacher behaviors and peer behaviors impact sense of belonging equally. For this reason, moving forward, educators who attempt to positively impact students’ levels of belonging should focus on both teacher and peer behaviors. Given findings regarding the impact of scholastic environment on sense of belonging, they should also continue to focus on the importance of
environmental factors such as possessing up-to-date technology, adequate textbook resources, and an eager attitude to promote scholastic achievement among both students and educators (Tyson & Woodward, 1989).

The impact of student behaviors also needs to be re-evaluated. Although this study did not find significant relationships among student behaviors, sense of belonging, and academic achievement, both Jana Juvonen (1996) and Albert Bandura (1986) have empirically tested and produced models which emphasize how student behaviors impact sense of belonging and/or academic achievement. Further, student behaviors are a significant component in developing friendships, creating clichés, fostering relationships with teachers and other administrators, as well as contributing to the process of learning both individually and with teachers/peers (Dion, Fuchs, & Fuchs, 2005).

References


