

RELATIONSHIPS AMONG SCHOOL CLIMATE DOMAINS AND SCHOOL SATISFACTION

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This study investigated the magnitude of the relationships between eight school climate domains and a measure of global school satisfaction among 2,049 middle and high school students. Tests of moderator effects were conducted to determine if the magnitude of the relationships between the school climate domains and school satisfaction differed as a function of students' gender, grade, age, GPA, or SES. Multiple regression analyses suggested that five school climate domains are significantly related to school satisfaction ($p < .01$): Academic Support (beta weight = 0.17), Positive Student-Teacher Relationships (0.12), School Connectedness (0.11), Order and Discipline (0.13), and Academic Satisfaction (0.12). In addition, the importance of the school climate variables to students' school satisfaction appeared invariant across the demographic variables and academic performance levels. The inclusion of school climate and school satisfaction measures may form a foundation for more comprehensive assessments for understanding and monitoring the experiences of students in schools. © 2010 Wiley Periodicals, Inc.

During the past several decades, both the popular press and education research literatures have tended to focus attention on the negative aspects of education, particularly in the United States. Literature abounds on such topics as poor school achievement, risk behavior and discipline problems, and unsafe schools. Recently, several research initiatives have shifted the focus to positive aspects of schools and children, such as the Positive Psychology, Positive Youth Development, and Quality of Life (QOL) perspectives (see Huebner & Diener, 2008, for a review). From these perspectives, assessments of the status of schools should consider broader outcomes, including positive academic and nonacademic outcomes, such as students' perceptions of the quality of their school environments, as well as their individual psychological well-being (Huebner, Gilman, Reschly, & Hall, 2009). Evaluations of schools should incorporate the voices of students (Zullig, Koopman, & Huebner, 2009).

Within this context, calls have been issued for more comprehensive assessments of the health, well-being, and overall "status" of children and youth in schools (Huebner et al., 2004), and to some extent are beginning to be heard. For example, Suldo & Shaffer (2008) found that when life satisfaction indicators were supplemented with traditional, negative indicators of illness (i.e., psychopathology) in the mental health screenings of middle school students, four distinct groups were identified: those with Complete Mental Health, Vulnerable Youth, Symptomatic but Content, and Troubled Youth. Youth who scored in the low to average range on internalizing symptoms and teacher-rated externalizing symptoms and reported satisfactory levels of life satisfaction were defined as Complete (57%), 13% as Vulnerable (low psychopathology and low life satisfaction), 13% as Symptomatic but Content (high psychopathology and average to high life satisfaction), and 17% as Troubled (high psychopathology and low life satisfaction). Complete Mental Health students were found to have better reading skills, school attendance, academic self-perceptions, academic-related goals, social support from classmates and parents, and self-perceived physical health and

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fewer social problems than Vulnerable students also without clinical levels of mental illness but with low life satisfaction. Furthermore, among students with clinical levels of psychopathology, students with high life satisfaction (Symptomatic but Content youth) reported increased social functioning and physical health.

Although many conceptualizations of positive well-being have been promoted, the construct of life satisfaction or perceived quality of life (PQOL) in schools has frequently been used as an overarching indicator of student well-being (Huebner, 2004). PQOL refers to an individual's subjective appraisal of the quality of her or his life as a whole and/or with specific domains, such as family, school, or living environment (Diener, Suh, Lucas, & Smith, 1999; Shin & Johnson, 1978). When measured globally (i.e., life as a whole), PQOL measures typically contain items that are domain-free (e.g., I like my life) versus domain-specific (I like my *school* life). The measures typically have response options that range from below a neutral point to above a neutral point so that a wide range of PQOL can be distinguished. For example, some measures use Andrews and Withey's (1976) response scale, which incorporates several options above neutral (i.e., mostly satisfied, pleased, and delighted) and several below neutral (terrible, unhappy, mostly dissatisfied). Such options allow a more finely nuanced report of well-being than traditional negatively focused scales that restrict the respondents' reports to the simple absence of problem behavior versus the presence of various levels of risk behavior (e.g., I do/do not get into fights at school; I do/do not feel anxious at school). Thus, life satisfaction or PQOL reports can provide a more comprehensive picture of positive and negative levels of youth well-being.

School satisfaction has been investigated primarily within the context of the broader PQOL perspective. It has been defined as a student's evaluation of the positiveness of his or her school experiences "as a whole" (Huebner, 1994). Although some authors have suggested that school satisfaction is important in its own right (Noddings, 2003; Zullig et al., 2009), the importance of school satisfaction is underscored by its associations with school grades (Huebner & Gilman, 2006; Ladd, Buhs, & Seid, 2000), behavior problems (DeSantis, Huebner, & Suldo, 2006; Elmore & Huebner, in press), and dropping out (U.S. Department of Education, 1990).

Likewise, school climate has been associated with important school outcomes. Although educational policy has been driven primarily by the narrow measures of reading and mathematical skill dictated by No Child Left Behind (NCLB), growing evidence suggests that school climate can affect student social environment, behavior, and learning and that when organizational processes and social relationships are addressed, positive behavioral change can occur (Flay, 2000; Moon et al., 1999; Patton et al., 2006). For example, in a study by Hoy and Hannum (1997), among the most important school climate variables influencing student achievement in NCLB subjects were a serious and orderly learning environment (Academic Emphasis), teachers displaying commitment to their students (Teacher Affiliation), and adequate supplies and material support for teaching (Resource Support), even after controlling for socioeconomic status (SES).

PQOL indicators, such as school satisfaction, are usually differentiated from the more objectively conceptualized indicators of QOL, such as school climate. School-based subjective or perceived indicators involve measures of individuals' *overall* evaluations of school experiences as determined by the students' themselves. On the other hand, objective indicators refer to aggregated measures of observable, quantifiable, external school domains (e.g., safe school location, positive student-teacher relationships, academic outcomes), which are generally determined by experts (e.g., educational professionals). Thus, school satisfaction measures, in effect, allow students to respond based on their own, unique criteria (e.g., allowing for individual differences with respect to the inclusion and/or weighting of various domains) whereas school climate measures require students to respond to items reflecting the predetermined domains of the (particular) scale developer(s).

Some controversy has ensued regarding the importance and relationships between the two perspectives. Because research reveals a degree of discriminability of relationships between objective and subjective indicators, some researchers have concluded that objective and subjective indicators reflect distinct, but complementary QOL information (e.g., Diener & Suh, 1997). To the extent that this conclusion is accurate, a complete understanding of the school context of children and youth will require multiple indicators drawn from both traditions. For example, Fattore, Mason, and Watson (2007) argue for the importance of contextual factors in the development of child QOL indexes, including grounding the indicators in the experiences of children. Nevertheless, it should be noted that issues surrounding the relevant domains of school climate are longstanding (see Anderson, 1982; Brookover et al., 1978; Cohen, McCabe, Michelli, & Pickeral, 2009; McDill, Meyers, & Rigsby, 1967; Perry, 1908; Zullig, Koopman, Patton, & Ubbes, 2010). As elaborated upon below, a full explanation of the precise nature of the objective–subjective indicator associations requires careful empirical scrutiny.

A review of the literature reveals that most studies of school satisfaction have emphasized the presumed “outcomes” associated with students’ dissatisfaction, such as academic success and appropriate classroom behavior. Few studies have aimed at identifying the environmental determinants of individual differences in school satisfaction. The few exceptions are summarized in Huebner et al. (2009). However, research examining environmental factors associated with adolescents’ satisfaction with their schooling experience has revealed that some indicators of school climate (e.g., perceived social support, a psychologically safe and caring classroom, student–teacher relationships) are crucial correlates (Baker, 1998; Ito & Smith, 2006; Natvig, Albreksten, & Qvarnstrom, 2003; Vieno, Santinello, Pastore, & Perkins, 2007).

The primary purpose of this study was to further explore the presumed school environment determinants of students’ school satisfaction, using the newly developed School Climate Measure (SCM: Zullig et al., 2010). The SCM was developed to assess middle and high school students’ perceptions of several domains of their school climate.

Cohen et al. (2009) suggest that school climate refers to the level of safety a school provides, the kind of relationships that exist within, and the larger physical environment, in addition to the shared vision and participation in that vision by all. Using this definition, Zullig et al. (2010) identified five primary, historically common school climate domains: order, safety, and discipline; academic outcomes; social relationships; school facilities; and school connectedness, as well as five widely cited school climate measurement tools. When these instruments were combined, preliminary analyses supported an 8-factor structure of the scale, including but extending beyond the five hypothesized domains: positive student–teacher relationships, school connectedness, academic support, order and discipline, school physical environment, school social environment, perceived exclusion/privilege, and academic satisfaction (Zullig et al., 2010). It was hypothesized that significant positive relationships would be observed between school satisfaction and each SCM domain score (with the exception of perceived exclusion/privilege). A significant negative correlation was expected between school satisfaction and perceived exclusion/privilege.

A secondary goal of the study was to assess the generalizability of the relationships between school satisfaction and the school climate domains. Tests of moderator effects were conducted to determine if the magnitude of the relationships between the SCM domains and school satisfaction differed as a function of students’ gender, grade, age, grade point average (GPA), or socioeconomic status (SES). Demonstrations of the comparability of the relative importance of the domains across these demographic variables should also clarify important contextual determinants of individual differences in adolescents’ levels of school satisfaction.

METHOD

Participants

Using methods approved by the referent university's Institutional Review Board, a total of 2,049 students were surveyed using convenience sampling methods from three rural school districts in a Midwestern state in the spring of 2008. Pretesting of the SCM among middle and high school students suggested that most completed the questionnaire in 30 minutes or less. Thus, questionnaire administration was conducted during regularly scheduled classes by trained data collectors, emphasizing anonymity, privacy, and confidentiality. Classes that met during the second period were selected to maximize student eligibility. Parent-notification forms were distributed at least seven days in advance of survey administration; those parents who wanted their children to participate were required to sign and return the form (active consent). No incentives were distributed for participation.

Despite the convenience sampling, the sample was evenly distributed on all of the demographic items with the exception of race (Table 1). The total sample consisted of 1,026 males (50.1%) and 1,023 females (49.9%). Students who reported being White/Non-Hispanic (1,722, 84.0%), Other

Table 1
Sample Characteristics

Variable	<i>n</i>	%
Age		
<12 Years	459	22.4
13 Years	338	16.5
14 Years	301	14.5
15 Years	317	15.5
16 Years	266	13.0
17 Years	262	12.8
>18 Years	106	5.3
Grade		
6th	296	14.4
7th	330	16.1
8th	301	14.7
9th	346	16.8
10th	318	15.8
11th	224	10.9
12th	234	11.3
Free/Reduced Lunch		
Yes	478	23.3
No	1091	53.3
Not Sure	480	23.4
GPA		
Mostly As	787	38.4
Mostly Bs	696	34.0
Mostly Cs	321	15.7
Mostly Ds	81	4.0
Mostly Fs	31	1.4
None of These	11	0.5
Not Sure	122	6.0

(110, 5.4%), Black or African American (47, 2.3%), and Asian (46, 2.2%) totaled approximately 94% of the total sample. The remaining 124 (6.1 %) were American Indian or Alaskan Native, Hispanic or Latino, or Native Hawaiian or Other Pacific Islander. Table 1 contains the additional sample demographics of grade, free or reduced-price lunch, and self-reported grades (GPA).

Design

Multidimensional Students' Life Satisfaction Scale (MSLSS) School Satisfaction Subscale (Huebner, 1994). The MSLSS School Satisfaction subscale consists of eight items assessing a respondent's satisfaction with his or her school experience (Table 2). The six-response-option format was used for this study (Huebner, Laughlin, Ash, and Gilman, 1998): strongly disagree = 1; disagree = 2; mildly disagree = 3; mildly agree = 4; agree = 5; and strongly agree = 6. Negatively keyed items were reverse-scored (see Table 2 for the list of negatively keyed items) so that strongly agree = 1 and so forth, with higher scores indicating higher levels of school satisfaction. For this study, a total school satisfaction score was created by summing the item responses and dividing by eight (the number of domain items). Table 2 provides sample means and standard deviations for the MSLSS school satisfaction domain.

The psychometric properties of the MSLSS consistently yield robust values, with internal consistency estimates of each MSLSS domain of .80 and higher (Greenspoon & Saklofske, 1997; Huebner, 1994; Huebner et al., 1998). Evidence for construct validity has been found by comparing the domain scores with well-known behavior and self-concept scales, including the Behavior Assessment System for Children-Second Edition (BASC 2: Reynolds & Kamphaus, 2004) and the Self-Concept Scale (Marsh, Barnes, Cairns, & Tidman, 1984). Evidence for construct validity has been consistently found using both exploratory (Huebner, 1994) and confirmatory factor analysis (Gilman, Laughlin, & Huebner, 1999). Finally, the factor structure of the scale is invariant with respect to nationality (Gilman et al., 2008).

School Climate Measure (SCM: Zullig et al., 2010). The SCM was constructed based on a historical review of the literature and an instrument review. The 39-item SCM contains eight scales measuring dimensions of school: Positive Student-Teacher Relationships (9 items), School Connectedness (6 items), Academic Support (6 items), Order and Discipline (7 items), School Physical Environment (4 items), School Social Environment (2 items), Perceived Exclusion/Privilege (3 items), and Academic Satisfaction (2 items). All items use the same five-response-option format: Strongly Disagree = 1; Disagree = 2; Don't Know = 3; Agree = 4; and Strongly Agree = 5.

To explore the psychometric properties of the SCM, a sample of over 2,000 middle and high school students was randomly split into exploratory and confirmatory samples and subjected to factor analytic and structural equation modeling techniques (see Zullig et al., 2010). Factor analysis confirmed an eight-factor solution (loadings with absolute values > .40) where item factor loadings ranged from .42 to .87. Coefficient alphas ranged from .65 to .91 for each scale. In addition, structural equation models revealed that the final models fit the data well in both the exploratory ($\chi^2 = 1166.78$ ($df = 674$, $p \leq .0001$); CFI = .949; TLI = .944; RMSEA = .035) and confirmatory samples ($\chi^2 = 1245.37$ ($df = 674$, $p \leq .0001$); CFI = .946; TLI = .946; RMSEA = .037).

RESULTS

MSLSS School Satisfaction Subscale Psychometrics

Preliminary analyses were conducted to determine if participants were able to distinguish the school satisfaction items from the school climate items. Specifically, an exploratory factor analysis was conducted that included all of the items from the SCM and the school satisfaction subscale from

Table 2
 Mean MSLSS School Satisfaction Subscale Scale Scores

School Satisfaction Item	M	SD	Factor Loading
I look forward to going to school.	3.84	1.50	.82
I like being in school.	3.83	1.51	.82
School is interesting.	3.72	1.50	.72
I wish I didn't have to go to school.*	3.13	1.68	.60
There are many things about school I don't like.*	2.84	1.55	.47
I enjoy school activities.	4.56	1.40	.57
I learn a lot at school.	4.47	1.38	.54
I feel bad at school.*	4.25	1.68	.43
Total	3.09	0.62	

*Indicates reverse-keyed items.

the MSLSS (see Zullig et al., 2010, for full results). A varimax rotation indicated that the school satisfaction subscale items loaded on one factor (Eigenvalue = 3.29), and none of the SCM items loaded on this factor. This factor explained 4.7% of the total variance in school climate reports. The coefficient alpha for the school satisfaction subscale in this study sample was .84. The scale items, their means and standard deviations, and associated factor loadings can be found in Table 2. Overall, these analyses supported differentiation of the school satisfaction and school climate domains, including potentially closely related ones such as school connectedness. In short, adolescents were able to discriminate between the various predictor and criterion variables, a prerequisite for the subsequent analyses.

Correlational Analysis

Correlations among all variables included in analyses are presented for the entire sample in Table 3. As can be seen, most of the school climate variables were significantly related to each other and to school satisfaction. As hypothesized, each school climate variable was positively related to students' reported school satisfaction, with the exception of perceived exclusion/privilege, which was hypothesized to be negatively associated with school satisfaction. The correlation ($r = 0.31$, $p < .01$) between school satisfaction and academic support suggests that students' perceived academic support from school personnel is particularly related to their school satisfaction. The negative correlation ($r = -0.07$, $p < .01$) between school satisfaction and perceived exclusion/privilege suggests that students' perceptions of favoritism (e.g., same student always chosen to help the teacher, take part in after school activities) shown by school personnel is associated with decreased school satisfaction. These findings are noteworthy because all of the variables related significantly to the criterion school satisfaction variable in expected directions.

An analysis of the correlations among the demographic variables (Table 3) suggests that age and grade are significantly related to each other ($r = .95$), suggesting strong collinearity. Not surprisingly, both of these demographics relate to the school climate and school satisfaction variables in nearly identical ways; therefore, only age was selected for the regression analyses because it was a continuous variable. GPA was also significantly related to most of the school climate (except School Connectedness) and school satisfaction variables. GPA and gender were also positively related ($r = .10$, $p < .01$), whereas GPA and SES were negatively associated ($r = -.14$, $p < .01$), but gender and SES were not related to any of the school climate or school satisfaction variables.

Table 3
Intercorrelations between Demographic, School Climate, and School Satisfaction Variables for the Total Sample (n = 2, 049)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	—													
2. Gender	0.02	—												
3. Grade	0.95*	-0.02	—											
4. SES (Free/Reduced-Price Lunch)	-0.02	0.01	-0.01	—										
5. GPA	-0.01	0.10*	-0.05	-0.14*	—									
6. Positive Student-Teacher Relationships	0.04	-0.01	0.04	0.01	0.14*	—								
7. School Connectedness	0.03	-0.06	0.05	0.05	0.05	0.68*	—							
8. Academic Support	0.13*	0.05	0.13*	0.01	0.27*	0.66*	0.47*	—						
9. Order and Discipline	0.22*	0.03	0.23*	-0.00	0.13*	0.61*	0.47	0.55*	—					
10. School Physical Environment	0.08*	-0.01	0.08*	0.01	0.15*	0.52*	0.43*	0.48*	0.49*	—				
11. School Social Environment	0.10*	0.00	0.11*	-0.02	0.08*	0.55*	0.44*	0.42*	0.43*	0.39*	—			
12. Perceived Exclusion/Privilege	0.00	0.05	-0.01	0.01	0.05	0.04	-0.10*	0.04	0.04	0.02	0.05	—		
13. Academic Satisfaction	-0.10*	0.04	-0.11*	0.01	0.12*	0.39*	0.34*	0.36*	0.31*	0.24*	0.26*	0.04	—	
14. School Satisfaction	0.15*	0.09	0.15*	0.04	0.07*	0.28*	0.23*	0.31*	0.28*	0.22*	0.17*	-0.07*	0.16*	—

* p < .01.

Multiple Regression

Although significant bivariate correlations established the presence of relationships between school climate variables and school satisfaction, a simultaneous multiple regression analysis was conducted in order to determine the total amount of variance explained in school satisfaction scores by each of the school climate variables, as well as to evaluate the relative strength (e.g., unique variance contribution) of each school climate variable in predicting school satisfaction when all school climate variables were considered concurrently. School satisfaction scores were regressed on the linear combination of positive student–teacher relationships, school connectedness, academic support, order and discipline, school physical environment, school social environment, perceived exclusion/privilege, and academic satisfaction. The equation containing all school climate variables accounted for 34% of the variance in school satisfaction, $F(8, 1380) = 87.74$, $p < .0001$.

Beta weights (standardized multiple regression coefficients) and squared semipartial correlation coefficients (the percentage of variance in school satisfaction accounted for by a given predictor, beyond the variance accounted for by the other predictors) were then reviewed to assess the relative importance of the eight school climate variables in the prediction of school satisfaction. Note that in the light of significant relationships found between the demographic age and GPA variables and school satisfaction, these variables were dummy-coded and entered first to statistically control for potential confounds of these demographic factors on the relationship between school climate and school satisfaction. Beta weights and uniqueness indices are presented in Table 4.

Even when students' age and GPA were considered, five of the eight school climate variables were significantly related to school satisfaction (as indicated by significant beta weights). Academic Support demonstrated the highest beta weight at 0.17 ($p < .0001$), whereas the beta weights for the school climate variables of Positive Student–Teacher Relationships, School Connectedness, Order and Discipline, and Academic Satisfaction were 0.12 ($p < .01$), 0.11 ($p < .001$), 0.13 ($p < .0001$), and .12 ($p < .0001$), respectively.

Findings regarding squared semipartial correlations matched those for beta weights, in that Academic Support emerged as the strongest predictor of school satisfaction, accounting for approximately 1.3% of the variance in school satisfaction scores, beyond that explained by the remaining school climate variables and demographic variables. In contrast, with the exception of the Academic Satisfaction scale, the remainder of the school climate variables each accounted for less than 1% of the unique variance in school satisfaction.

Table 4
Beta Weights and Uniqueness Indices of Regression Relating School Satisfaction to School Climate

School Climate Variable	ΔR^2	β	t
1. Positive Student–Teacher Relationships	.238	.123	2.78*
2. School Connectedness	.013	.115	3.58**
3. Academic Support	.063	.168	5.10**
4. Order and Discipline	.013	.129	4.19**
5. School Physical Environment	.0003	.021	0.79
6. School Social Environment	.0007	.022	0.85
7. Perceived Exclusion/Privilege	.001	.018	0.82
8. Academic Satisfaction	.009	.124	4.94**

* $p < .01$.

** $p < .001$.

Potential Moderators of the Relationship between School Climate and School Satisfaction

The possibility of various moderators of the associations between school climate and school satisfaction was evaluated. For example, it seems possible that the magnitude of the effects of the various school climate domains may change as students progress from middle to high school. Thus, we evaluated whether students' age levels moderated the effects of the association between the school climate domains and school satisfaction reports. Following guidelines suggested by Holmbeck (1997) and Cohen, Cohen, West, and Aiken (2003), multiple regression analyses that included interaction terms were conducted to evaluate age as a moderator in the relationship between school climate and school satisfaction. Note that age was entered in its continuous form (i.e., chronological age) in tests for interaction effects. School satisfaction scores were regressed on centered terms (as recommended by Cohen et al., 2003) representing adolescent age, each school climate variable, and each interaction between adolescent age and each school climate variable (e.g., Positive Student–Teacher Relationships \times Age, School Connectedness \times Age). In the prediction of school satisfaction, no significant interactions were found between any school climate variable and age. Likewise, there were no significant interactions between any school climate variable and age and GPA.

An interaction between gender and Perceived Exclusion/Privilege showed significance ($p = .04$); however, a partial F -test indicated that the eight interaction terms involving gender did not significantly reduce the error sum of squares ($F(8, 1383) = 1.355, p = .212$). Thus, the importance of the school climate variables to students' school satisfaction appears invariant across major student demographic variables and academic performance levels.

DISCUSSION

As suggested by previous research (see Zullig et al., 2009, 2010), the inclusion of school satisfaction items where students themselves can rate their satisfaction with their interest in school, enjoyment of school activities, and feelings while at school yielded nonredundant information relative to the assessment of school climate only. The conjoint evaluation of school climate and school satisfaction information enabled the determination of which (and to what extent) school climate variables related significantly to the affective well-being of students. This study thus confirmed previous research suggesting school climate differences (e.g., teacher–student relationships, peer social relations) between students who like and dislike their schooling experience (DeSantis et al., 2006; Huebner & Gilman, 2006; Suldo & Shaffer, 2008). As a result, study findings lend insights into potential targeted environmental strategies to increase school satisfaction and improve students' schooling experience.

The preliminary SCM validation study conducted by Zullig et al. (2010) is also given further credence from the results of the present study. Data from the present study suggest that all eight school climate domains from the SCM correlate in predictable ways with school satisfaction (an independent criterion), adding additional preliminary support for the validity of the SCM. The possible exception may be the Perceived Exclusion/Privilege school climate domain, owing to its modest associations with school satisfaction. Nevertheless, because youth uniformly express the least satisfaction with their school experience among the important life satisfaction domains (Huebner, Drane, & Valois, 2000) and considering that schooling experience is the major educational focus of schools, this study suggests that knowledge of students' perceptions of school climate is essential to understanding individual differences in school satisfaction. In short, these particular school climate domains *mattered* to secondary level students, thus necessitating the inclusion of the domains in comprehensive assessment of school climate.

This research also clarified which school climate domains mattered most to these students. Results from the multiple regression analyses suggest that most of the observed differences in

school satisfaction, as related to the SCM, were being driven primarily by the domains of Academic Support, Positive Student–Teacher Relationships, School Connectedness, Order and Discipline, and Academic Satisfaction. In contrast, a school’s physical and social environment and perceived favoritism (Perceived Exclusion/Privilege) appear to account for less variance in school satisfaction reports. These results are fairly consistent with previous research conducted among American and Japanese students. Ito and Smith (2006) demonstrated that a positive school climate where students feel secure, respected, nurtured, and supported was the single best predictor of school satisfaction for both U.S. and Japanese adolescents. Cohesive relationships in general, but especially between teachers and students, composed the second most important predictor of school satisfaction in this study. For U.S. adolescents in particular, educational strategies that emphasized high expectations and support have been shown to lead to increased school satisfaction (Ito & Smith, 2006).

The present study extends beyond previous studies by demonstrating the generalizability of the importance of the various school climate domains across major demographic variables, implying that these domains are critical to include in comprehensive school climate measures across a wide range of variables (e.g., age, GPA, gender, and SES) among students in this large sample of U.S. public school students. In short, the evidence suggests that school climate is multidimensional for middle and high school students, and that the various domains are related to school satisfaction similarly for students in this sample, demonstrating comparable criterion-related validity. Measures, such as the SCM, that demonstrate generalizability across multiple demographic variables may then allow the modification of academic environments in consistent ways to positively impact school satisfaction and learning (Ladd et al., 2000; Suldo, Riley, and Shaffer, 2006).

This study also extends beyond other studies by highlighting the importance of academic (vs. social) support and satisfaction to school satisfaction. These variables have received less attention in the prior literature (see Huebner et al., 2009). The moderate amount of total variance explained by the combination of the eight SCM domains (34%) suggests that individual differences in students’ school satisfaction levels are not completely captured by these school climate domains, however. Future research may uncover additional environmental variables of importance. For example, school-wide behavioral expectations and/or rewards provided to students who adhere to established behavioral expectations have been shown to be crucial indicators of school-wide Positive Behavior Support intervention efforts (Lassen, Steele, & Sailor, 2006) as measured by the School-wide Evaluation Tool (Horner et al., 2004). These variables may also influence students’ school satisfaction reports. Future research is also needed to clarify the directionality of such school climate-satisfaction relationships, using multiple methods (e.g., observations, teacher reports) to augment measures of school climate and school satisfaction. Longitudinal and/or experimental designs are needed to clarify whether school climate influences school satisfaction as proposed by some researchers (e.g., Zullig et al., 2009) or whether school satisfaction influences school climate. Bidirectional relationships should also be considered.

Limitations and Directions for Further Research

Limitations of the present study include a sample composed mainly of Caucasian students from three school districts in one Midwestern state. Additional research needs to be conducted with different populations in different parts of the country, as these results may not be nationally representative or generalizable. Second, how students define their race is important. If students do not define their race specifically as one of the options presented on the instrument, results may not be as accurate. Third, although the SCM (Zullig et al., 2010) did go through a face-validity screening with the target population, the reading level of the survey has not been determined. If students did not understand all of the words and concepts contained within the survey, this could have an effect on

results. Fourth, this study was not able to link the study variables to student outcomes such as dropping out, attendance rates, or office disciplinary referrals. Future research should consider connecting the self-reported school climate and school satisfaction variables with these more objective measures. Finally, although the SCM was shown to contain eight school climate domains, several domains in the original instrument contained only two items (School Social Environment and Academic Satisfaction), which may limit the generalizability of the results.

This research has implications for school professionals. Prominent scholars have called for a science and practice of positive psychology in schools and other institutions (Seligman & Csikszentmihalyi, 2000), as well as systems of national indicators of well-being for individuals, including youth (Diener, 2000; Huebner et al., 2004). This research suggests the benefits of including measures of the school environment (school climate) as well as measures of individual differences (school satisfaction) in more comprehensive assessments of students' school experiences. Although the inclusion of school climate and school satisfaction measures may not constitute a comprehensive assessment system for understanding and monitoring the experiences of students in schools (Huebner et al., 2009), they may together form a strong foundation for developing such a system. For instance, measures of school climate and satisfaction might be incorporated into processes such as the evidence-based school-wide Positive Behavior Support Program, which supports the integration of data-based decision making and measurable outcomes for both teacher and student improvement (Bohanon, et al., 2006; Sugai & Horner, 2006).

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