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School Climate: Historical Review, Instrument Development, and School Assessment

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Abstract

This study's purpose is to examine the existing school climate literature in an attempt to constitute its definition from a historical context and to create a valid and reliable student-reported school climate instrument. Five historically common school climate domains and five measurement tools were identified, combined, and previewed by the target audience to determine face validity. The final student sample ($N = 2,049$) was randomly split into exploratory and confirmatory samples and subjected to factor analytic and structural equation modeling techniques. Factor analysis results confirmed an eight-factor solution (loadings with absolute values $> .40$). Item factor loadings ranged from .42 to .87. Coefficient alphas ranged from .65 to .91. Preliminary analyses support the reliability and validity of the instrument. This is the first study to balance historical precedent (what to measure) and modern scale development procedures (e.g., structural equation modeling) into a single attempt to measure school climate. Implications and potential uses are discussed.

Keywords

school climate, assessment, psychometrics, adolescents

The focus of this article is the definition and measurement of school climate. Defining school climate has been a challenge, and the discrepancies in the literature are well documented, ranging in definition from affective to contextual and viewed both objectively and subjectively (Freiberg, 1999; Homana, Barber, & Torney-Purta, 2006; Tagiuri, 1968). Complicating matters further are Healthy People 2010 (U.S. Department of Health and Human Services, 2000) goals that pertain to healthy school environments. From this perspective, a healthy school environment refers to the physical environment of the school such as school indoor air quality, pest and chemical management, ventilation, mold and moisture issues, and so on that may inhibit learning through increased

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risks to the health of school children and staff. Thus, the first goal of this article is to review the extant school climate literature in an attempt to offer a definition of school climate.

The second challenge in addressing school climate has been its measurement, in terms of both what to measure and how to measure it. Because No Child Left Behind (NCLB) dictates primarily measurement of reading and mathematical skill, educational policy has been driven by those narrow measures. However, growing evidence suggests that school climate can affect students' social environment, behavior, and learning and that by addressing organizational processes and social relationships, 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 a commitment to their students (teacher affiliation), and adequate supply and material support for teaching (resource support), even after controlling for socioeconomic status (SES). Furthermore, an entire 2004 issue of the *Journal of School Health* (Vol. 74, No. 7) was devoted to the topic of school connectedness and its robust relationship to health and educational outcomes in youth. But even if schools are measuring social and emotional aspects of school climate, the use of psychometrically sound measures has been lacking. For instance, a survey conducted by the National Center for Emotional Education with 40 principals, superintendents, and state department of education and national-level leaders revealed that among those who used school climate measures, more than one third had used homemade instruments that were not psychometrically sound (MMS Education, 2006). Therefore, the second goal of this article is to develop a psychometrically sound measure of student-reported school climate based on our review of the literature.

Defining School Climate

Although the construct of school climate can be traced back 100 years (Perry, 1908), the scientific study of school climate was not undertaken until the 1950s with the birth of organizational climate research. For example, March and Simon (1958) and Argyris (1958) began to analyze businesses and organizations in an attempt to correlate the influences of an organizational environment to such outcomes as morale, productivity, and turnover. Research continued throughout the 1960s and early 1970s, examining socioeconomic and race differences to explain achievement with mixed success (Coleman et al., 1966; Hauser, 1970; McDill, Meyers, & Riugsby, 1967).

By the late 1970s, researchers were attempting to associate school climate with student outcomes in schools. For example, Brookover and colleagues (1978) examined the climate, defined as the set of norms and expectations that were defined and perceived by individuals within the school, and determined that school climate was positively linked to the difference in mean outcomes between schools, even when adjusting for race, SES, and other demographics. In this study, the greatest indicator of achievement was the way students felt within themselves about the social environment within the school.

In the early and mid-1990s, studies focused on individual classes or teachers (Griffith, 1995; Stockard & Mayberry, 1992). Griffith (1995) argued that the relation between the level of study depended on the level at which the student identifies. Thus, in an educational environment where classes are held in different rooms with different teachers, it naturally follows that the unit of school climate measure is the school as a whole, whereas the individual classroom would be the appropriate measurement unit where students spend all or most of the day with a single teacher. Since the end of the 1990s and continuing today, researchers have attempted to link school climate to different outcomes including school achievement (Hoy & Hannum, 1997); aggression, victimization, and school crime (Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Wilson, 2004); attachment, bonding, connectedness, and engagement (Libbey, 2004); and problem drinking (Coker & Borders, 2001).

Domain	Domain Variations
1. Order, Safety, & Discipline	Perceived safety
	Respect for peers and authority
	Knowledge and fairness of disciplinary policies
	Presence of gangs
2. Academic Outcomes	Accomplishment and recognition
	Sense of academic futility
	Academic norms
	Academic instruction
	Overall satisfaction with classes
	Future and present evaluations of performance
3. Social Relationships	Teacher-student relationships
	Interpersonal relationships
	Student-peer relationships
	Helpfulness of school staff
4. School Facilities	School temperature
	Classroom arrangement
	Ambient noise
	School, classroom, and grounds condition
	School decorations
5. School Connectedness	Excited, enthusiastic, and engaged learners
	Feelings about school
	Students feel valued for their input

Figure 1. Historically common school climate domains measured

Most recently, Cohen, McCabe, Michelli, and Pickeral (2009) suggested school climate "refers to the quality and character of school life . . . based on patterns of people's experience of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures" (p. 10). Specifically, Cohen and colleagues (2009) suggested school life 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. Notably, this definition includes both social and physical aspects of school climate and implies the whole school as the appropriate measurement unit.

Acknowledging the complexity of what defines and composes school climate, there appear to be common domains measured over time. Reviews by Cohen (2006) and Freiberg (1999) and an additional review of the literature reveal at least five important school climate domains: *order, safety, and discipline* (Blum, McNeely, & Rinehart, 2002; Furlong et al., 2005; Griffith, 2000; Wilson, 2004); *academic outcomes* (Griffith, 2000; Loukas, Suzuki, & Horton, 2006; Worrell, 2000); *social relationships* (Furlong et al., 2005; Griffith, 2000; Wilson, 2004); *school facilities* (Rutter, Maughan, Mortimore, Ouston, & Smith, 1979; Wilson, 2004); and *school connectedness* (Blum, 2005; Catalano, Haggerty, Oesterie, Fleming, & Hawkins, 2004; Karcher, 2002; Whitlock, 2006). Specific aspects of all of these categories are provided in Figure 1. These domains offer additional clues as to what actually composes school climate including norms, values, and expectations that positively promote the social and emotional development of students while concurrently guaranteeing safety in a social and physical sense.

Measuring School Climate

The second goal of this article is to develop a psychometrically sound measure of school climate. To accomplish this task, a search was conducted of the most widely historically cited measurement tools using several databases, including PsychLit, Education Resources Information Center, Medline, and Cumulative Index to Nursing and Allied Health Literature. Selected tools were

	Order, Safety, and Discipline	Academic Outcomes	Social Relationships	School Environment	School Connectedness
San Diego Effective Schools Student Survey (ESSS)	Yes 13 items	Yes 26 items	Yes^ 10 items	Insufficient 1 item	Yes 7 items
National Education Longitudinal Study (NELS)	Yes 16 items	Yes 7 items	Yes 6 items	No	No
California School Climate and Safety Survey (CSCSS)	Yes 29 items	No	Yes^ 4 items	No	No
NASSP Comprehensive Assessment of School Environments (CASE)	Yes 5 items	Yes 5 items	Yes 14 items	Yes 5 items	Yes 5 items
School Development Program (SDP)	Yes 5 items	Insufficient 2 items	Yes 12 items	Insufficient 2 items	Yes 10 items

Figure 2. Mapped domains across identified historical school climate measures
^Adequate with teacher to student relationships, but poor with peer to peer relationships

then matched for their appropriateness in measuring each of the identified five school climate domains in Figure 1. Criteria used for inclusion were measures that have been used consistently since their inception, that are student reported, and that measure most of the five historically common school climate domains.

Measures that fit these criteria include the California School Climate and Safety Survey (CSCSS; Furlong et al., 2005; Furlong, Morrison, & Boles, 1991), the U.S. Department of Education's (1988) National Longitudinal Study Student Questionnaire (NELS), the National Association of Secondary School Principal's Comprehensive Assessment of School Environments (CASE, 1987), the San Diego County (1984) Effective Schools Student Survey (ESSS), and the School Development Program (SDP; Haynes, Emmons, & Ben-Avie, 2001). Of these measures, only the SDP, CASE, and CSCSS have any psychometric data reported. For the SDP, internal consistency estimates but no validity data were reported. The SDP had an average internal consistency of .79, with alpha coefficients ranging from .59 to .96. For the CASE only internal consistency estimates, with alpha coefficients ranging from .67 to .92 for each of the subscales, were reported. For the CASE, factor analytic validity testing had reportedly been performed, but those results are not available to the user. Notably, only the CSCSS has been published in a peer-reviewed journal (Furlong et al., 2005).

Figure 2 details how each of these measures compared to the identified school climate domains. As can be seen, in varying degrees, all of the measures appear to provide sufficient coverage across the domains. However, only the CASE appears to cover each domain evenly. The SDP also covers each domain but has only two items that appear to measure academic outcomes and school environment. The other three measures are incomplete in psychometric support or item coverage across each of the domains. Therefore, to fulfill the second goal of this study, a common set of valid and reliable school climate constructs was established by using existing school climate instruments through rigorous psychometric evaluation. The primary study hypothesis was that all five domains would be valid and reliable measures of school climate, although it was expected that not all construct items would offer psychometric support. Hence, this study aims to test whether the five domains selected through the instrument review were also mirrored in the final instrument.

Method

Questionnaire Development

Initially, items from the ESSS, NELS, CSCSS, CASE, and SDP were combined to create a pool of 184 items. Six demographic questions were also added (i.e., gender, age, grade, ethnicity, free or reduced-price lunch, and self-reported grades). All items first underwent a content and face validity screening with the target population. Seven middle and high school students were recruited to read and review the items for clarity and readability. Through this process, items determined to be inappropriate or not salient to the target audience were deleted, narrowing the original pool to 153 items.

Questionnaire item response options were tailored, owing to the combination of previous measures, to a 5-point Likert-type scale from *strongly disagree* to *strongly agree* and were grouped together by the five indicated school climate domains. In other words, items that fit into the order, safety, and discipline domain were grouped together for ease of questionnaire completion, totaling 27 items, and so forth.

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 school districts in a Midwestern state. Despite the convenience sampling, the sample was evenly distributed on all of the demographic items, with the exception of race (see Table 1). The total sample consisted of 1,026 males (50.1%) and 1,023 females (49.9%). Students who reported being White and non-Hispanic (1,722, 84.0%), Other (110, 5.4%), Black or African American (47, 2.3%), or Asian (46, 2.2%) totaled approximately 94.0% 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.

Data Analysis Plan

The strategy for developing the school climate measurement involved an iterative process. First, the sample was randomly split into exploratory and confirmatory samples. A random sample was generated using SAS Version 9.1.3. Chi-square analyses compared the demographic variables for any statistically significant differences in each sample.

The iterative measurement development process involved using information from theory, principal components analysis (PCA), and internal consistency statistics. Each phase of the process informed which items were retained and removed from subsequent analyses. PCA (Zwick & Velicer, 1986) determined the number of factors to retain. Items were retained on factors if they had high loadings (absolute values greater than .40), were not complex (i.e., did not load on two or more different factors with a difference of .2), and contained eigenvalues greater than 1, according to Kaiser's rule (Nunnally, 1978), on a scree plot (Cattell, 1966). Cronbach's alpha (Cronbach, 1951) determined scale internal consistency and provided evidence for items that might be suppressors. After the factor structure was examined using PCA, relationships between the latent and manifest variables were explored utilizing structural equation modeling using SAS 9.1.3 and the "Proc Calis" procedure. The finalized structural model was developed in the exploratory sample and confirmed in the confirmatory sample.

Structural equation modeling served two purposes in measurement development. First, the structure developed through the iterative PCA process was confirmed. Second, the latent factor structure intercorrelations were examined. PCA did not allow for the examination of highly correlated structures or hierarchical structures in scale development (i.e., an underlying theme or guiding concept to the whole measure).

Table 1. Sample Characteristics

Variable	*n*	%
Age		
12 years or younger	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 or older	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 or reduced-price 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

Structural equation models are deemed good representations of the theory based on parsimony, chi-square goodness of fit, descriptive fit indices (comparative fit index [CFI] and Tucker-Lewis index [TLI]), and alternative fit indices (root mean square error of approximation [RMSEA] and residuals). With respect to parsimony, models with the fewest parameters to explain the relationship were retained. For the descriptive indices, fits of greater than .9 (preferably greater than .95) indicated a well-fitting model (CFI: Hu & Bentler, 1999; TLI: Hu & Bentler, 1999). For RMSEA, a fit of less than .05 indicated a well-fitting model (Browne & Cudeck, 1993). A correlation matrix was also generated to assess discriminate validity.

Results

Comparing the Exploratory and Confirmatory Halves

To ensure that the exploratory and confirmatory halves did not differ on major demographic variables, the two data sets were compared using a series of chi-square statistics. The exploratory and confirmatory halves did not differ significantly on gender, $\chi^2(n = 2{,}052, 1) = 1.76$, $p = .18$; grade level, $\chi^2(n = 2{,}042, 6) = 8.99$, $p = .17$; race, $\chi^2(n = 2{,}011, 6) = 4.45$, $p = .62$; free or reduced-price lunch, $\chi^2(n = 2{,}042, 2) = 1.77$, $p = .41$; and GPA, $\chi^2(n = 2{,}039, 7) = 3.55$, $p = .83$. The samples did differ by age, $\chi^2(n = 2{,}058, 6) = 16.14$, $p = .01$. This is likely a result of the large sample size and is not threatening to the overall instrument development process.

Exploratory Analyses

The results of the PCA did not support the five theorized domains detailed in the review of literature. Rather, they suggested the survey consisted of eight factors: Positive Student–Teacher Relationships (19 items, eigenvalue = 35.51), School Connectedness (17 items, eigenvalue = 5.35), Academic Support (15 items, eigenvalue = 4.31), Order and Discipline (12 items, eigenvalue = 3.43), School Physical Environment (10 items, eigenvalue = 3.18), School Social Environment (11 items, eigenvalue = 2.75), Perceived Exclusion/Privilege (4 items, eigenvalue = 2.27), and Academic Satisfaction (7 items, eigenvalue = 2.14), narrowing the original instrument from 153 items to 95.

To determine the final number of items, each item was further scrutinized to ensure that it loaded highly on an individual factor and was not complex (i.e., loaded on more than one factor). Through the use of Proc Calis, a Wald's test and a Lagrange multiplier test were applied to screen out items that loaded on more than one factor. This was conducted through several iterations until a model that provided an adequate fit to the exploratory data was obtained. This process further reduced the 95 items to 37, 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), which explained 45.7% of the variance. Because this process produced a simple factor structure, a varimax rotation examined factor loadings to establish construct validity of the instrument. Factor loadings ranged from .42 to .87, suggesting that the items were highly saturated in each latent construct. Factor loadings, estimates of internal consistency, and variances explained by each factor can be found in Table 2.

After the PCA and estimates of internal consistency provided information concerning the factor structure and the factor structure remained stable, the items were further scrutinized using structural equation modeling. A fully correlated model was found to fit the data well: $\chi^2 = 1166.78$ ($df = 674$, $p < .0001$), CFI = .949, TLI = .944, RMSEA = .035, goodness-of-fit index (GFI) = .908. Although the chi-square statistic is significant (because the large sample size will usually indicate significance despite a good fit), it is noteworthy to state that the quotient of the chi-square divided by the degrees of freedom is less than 2.

Confirmatory Analysis

Using structural equation modeling methods, the fully correlated factor structure was then fit to the confirmatory sample. The model also fit the data well: $\chi^2 = 1245.37$ ($df = 674$, $p < .0001$), CFI = .946, TLI = .946, RMSEA = .037. Overall, the GFI was .906. Similar to the exploratory analysis, the significant chi-square statistic is likely because of the large sample size and is not threatening.

Scale Interitem Correlations

Scale item intercorrelations are provided in Table 3. Correlation coefficients ranged from $r = .02$ ($p = .99$) between School Physical Environment and Perceived Exclusion/Privilege to $r = .68$ ($p < .0001$) between Positive Student–Teacher Relationships and School Connectedness. The range in strength of these correlations indicates the discriminability of the domains. Notably, Positive Student–Teacher Relationships (Factor 1) seems to be the most highly correlated factor when compared to the other factors, the lone exception being Perceived Exclusion/Privilege. In addition, Perceived Exclusion/Privilege is also negatively correlated with School Connectedness.

Table 2. Final Instrument Items, Alpha Coefficients, and Factor Loadings

Item (% Variance Explained)	Exploratory Principal Components Analysis	Confirmatory Principal Components Analysis
Factor 1: Positive Student–Teacher Relationships (27.6%)	**.88**	**.91**
Teachers understand my problems	.69	.73
Teachers and staff seem to take a real interest in my future	.65	.71
Teachers are available when I need to talk with them	.73	.77
It is easy to talk with teachers	.75	.77
Students get along well with teachers	.67	.67
At my school, there is a teacher or some other adult who notices when I'm not there	.45	.45
Teachers at my school help us children with our problems	.77	.76
My teachers care about me	.77	.77
My teacher makes me feel good about myself	.75	.76
Factor 2: School Connectedness (4.1%)	**.77**	**.81**
My schoolwork is exciting	.66	.70
Students can make suggestions on courses that are offered	.60	.66
Students are publicly recognized for their outstanding performances in speech, drama, art, music, etc.	.59	.57
If this school had an extra period during the day, I would take an additional academic class	.52	.44
This school makes students enthusiastic about learning	.72	.72
Students are frequently rewarded or praised by faculty and staff for following school rules	.63	.70
Factor 3: Academic Support (3.3%)	**.81**	**.80**
I usually understand my homework assignments	.63	.61
Teachers make it clear what work needs to be done to get the grade I want	.64	.66
I believe that teachers expect all students to learn	.73	.63
I feel that I can do well in this school	.72	.73
My teachers believe that I can do well in my school work	.73	.68
I try hard to succeed in my classes	.43	.49
Factor 4: Order and Discipline (2.7%)	**.82**	**.83**
Classroom rules are applied equally	.70	.77
Problems in this school are solved by students and staff	.60	.54
Students get in trouble if they do not follow school rules	.51	.51
The rules of the school are fair	.73	.67
School rules are enforced consistently and fairly	.81	.77
My teachers make it clear to me when I have misbehaved in class	.42	.49
Discipline is fair	.72	.73
Factor 5: School Physical Environment (2.4%)	**.86**	**.87**
The school grounds are kept clean	.70	.74
My school is neat and clean	.85	.83
My school buildings are generally pleasant and well maintained	.78	.83
My school is usually clean and tidy	.85	.80
Factor 6: School Social Environment (2.1%)	**.84**	**.82**
I am happy with kinds of students who go to my school	.84	.80
I am happy, in general, with the other students who go to my school	.87	.88

(continued)

Table 2. (continued)

Item (% Variance Explained)	Exploratory Principal Components Analysis	Confirmatory Principal Components Analysis
Factor 7: Perceived Exclusion/Privilege (1.8%)	**.73**	**.73**
At my school, the same person always gets to help the teacher	.70	.67
At my school, the same kids get chosen every time to take part in after-school or special activities	.83	.82
The same kids always get to use things, like a computer, a ball or a piano, when we play	.60	.65
Factor 8: Academic Satisfaction (1.7%)	**.65**	**.70**
I am happy about the number of tests I have	.79	.81
I am happy about the amount of homework I have	.70	.70

Note: Cronbach's alpha values are reported in bold.

Table 3. Scale Interitem Correlations

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Factor 1: Positive Student–Teacher Relationships	—							
Factor 2: School Connectedness	.68*	—						
Factor 3: Academic Support	.66*	.47*	—					
Factor 4: Order and Discipline	.61*	.47*	.55*	—				
Factor 5: School Physical Environment	.52*	.43*	.48*	.49*	—			
Factor 6: School Social Environment	.55*	.44*	.42*	.43*	.39*	—		
Factor 7: Perceived Exclusion/ Privilege	.04	–.10*	.04	.04	.02	.05	—	
Factor 8: Academic Satisfaction	.39*	.34*	.36*	.31*	.24*	.26*	.04	—

*$p < .001$.

Discussion

The goals of this preliminary study were to examine the existing school climate literature in an attempt to constitute its definition and to create a valid and reliable school climate instrument by combining and refining existing school climate measures. From throughout the school climate literature, five domains were identified. In addition, when identifying the most historically common school climate measures, most of these were not published in peer-reviewed journals

and were developed approximately 20 years ago with no reported psychometrics. Thus, this study represents the first step to developing a school climate measure that balances historical precedent (what to measure) and modern scale development procedures (e.g., structural equation modeling) into a single attempt to measure school climate with fidelity.

Rigorous psychometric analysis indicated that there were eight domains identified with this sample. However, two factors (School Social Environment and Academic Satisfaction) contained only two items. Although speculative, given the prominence of the positive student–teacher relationships and school connectedness factors, it may be that school social environment and academic satisfaction are more closely interwoven with these factors than previously hypothesized. For example, 8 of the 10 items that significantly loaded on the School Social Environment factor also double loaded on the other factors in the exploratory analysis and were thus discarded.

Further analysis of the eight-factor model revealed that the model not only encompasses the hypothesized five-factor model but also creates a greater distinction within each domain, especially the domain concerning social relationships. For example, the new eight-factor model subdivided social relationships into three distinct areas: overall *social environment*, *positive student–teacher relationships*, and *perceived exclusion/privilege*. These categorizations could allow schools to better identify positive and negative aspects of the social environment that can affect adolescent learning. Correlation analyses also indicated the discriminability of these eight school climate domains. Although most domains were positively correlated, their varying strength underlines the utility of the eight-domain model. Highlighting this fact is the positive correlation pattern between positive student–teacher relationships and the other school climate domains and the negative correlation between perceived exclusion/privilege and school connectedness.

Research supports that the classroom teacher is the most important figure in shaping student learning, closely followed by the school principal (Wallace Foundation, 2006). School leaders set the tone and the expectations for behavior, which trickle down to faculty and staff and subsequently classroom learners. Although the Perceived Exclusion/Privilege factor was an unexpected finding in this study, considering the known link between school connectedness and engagement and achievement (Klem & Connell, 2004; McNeely, Nonnemaker, & Blum, 2002; Whitlock, 2006), this may be an important school climate domain to monitor.

Implications

Although the scale needs further development for use as a clinical tool, it may eventually prove useful with individuals or groups of individuals (e.g., students from different backgrounds, genders, abilities, school settings) in understanding school climatic factors that may inhibit or facilitate individual and/or group academic performance. With the passage of NCLB, schools are being forced to make more data-driven decisions. As NCLB continues to try to close the disparities gap, it has become evident in some cases that more or better instruction alone cannot close the gap (Anderson-Butcher, Stetler, & Midle, 2006). However, this research indicates that school climate factors, especially positive student–teacher relationships, are highly correlated with other climate factors, including perceptions of academic outcomes. As suggested by previous research, these and other climatic factors affect student motivation to learn (Eccles et al., 1997). Therefore, as schools continue to search for unique ways to help students increase their academic performance, a measurement of school climate, such as the one detailed here, may assist school psychologists, counselors, and other school personnel to effectively guide the administration to increase academic performance through other methods besides simply more instruction. For example, school climate surveys could serve both formative and summative purposes. Formatively, schools could first conduct a needs assessment of their climate and examine their strengths and challenges by clarifying potential places to intervene. Summatively, once strategies have

been put in place to address emerging challenges, schools could then use a school climate instrument to evaluate the impact of their interventions on represented students.

Limitations to the present study include a sample mainly composed of Caucasian students from three school districts in one Midwestern state. The purpose of this study was to identify or create a valid and reliable school climate tool. Although the primary goal was met, 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 specifically define their race as one of the options presented on the instrument, results may not be as accurate. Third, although the original survey did go through a face validity screening with the target population, the reading level of the survey has not been determined. If students do not understand all of the words and concepts contained in the survey, this could have an effect on results.

Along similar lines, even though this study utilized student-reported school climate measures, an important point to make is that the school climate domains confirmed in this study are still researcher-generated domains. Although strong empirical support exists for some of the identified domains, a case can be made for the inclusion of school satisfaction items where students themselves can rate their satisfaction with, for example, their interest in school, enjoyment in school activities, or feelings while at school, as notable differences exist between students who like and dislike their schooling experience (DeSantis, Huebner, & Suldo, 2006; Huebner & Gilman, 2006). An extension of the present study would be to then link perceived school satisfaction to each of the school climate domains, which would yield richer information for schools (Ito & Smith, 2006).

Conclusions

Is seems clear from this research that the idea of "school" is not strictly a building but rather a setting or place of education that includes the people who go there and that all of these interact with one another to affect learning. School climate can affect student academic achievement and success in addition to positive social and emotional development efforts. However, as pointed out by Cohen and colleagues (2009), these are not reflected in current educational policy or teaching practices. By attending to each of these factors, measurement tools such as the one detailed here will play increasingly important roles in American education.

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