

The Relation Between School Culture and State Assessment Results in Communication Arts and Math

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Introduction

Educators are perennially concerned with both academic achievement and student character, although there is often disagreement in how best to characterize the relationship between the two. In the resource-restricted atmosphere in which many educators operate (including shortage of time), these two concerns are sometimes seen as competing for the same attention and organizational resources, and thus “feeding one may feel like starving the other.” In this paper, we describe what we see as the interdependent relationship between character development and student achievement within a school community. We summarize the literature on school climate and its contribution to student achievement, and characterize perspectives on the optimal school climate. We will show how the combined elements of school climate and culture of the school have a direct impact on teacher performance, student achievement, and the level of disruptive and anti-social behavior. We then present data relating climate variables to student achievement from 64 randomly selected schools throughout the state of Missouri.

School Climate

The CHARACTER^{plus}[®] Way impacts many aspects of school life from organizational assumptions and institutional processes, to classroom practice, to group identity, to the warmth and tone of the interpersonal relationships in the school, to opportunities for new relationships among students, with teachers, between teachers, and with staff and administrators. If successful, the effects of the program will be reflected in a number of elements that are conceptually part of a larger dynamic variously called school climate or school culture, sometimes referred to as a school's social atmosphere, character, or personality.

School climate has been called the heart and soul of a school (Freiberg & Stein 1999). In other words, it is that quality of a school that helps individuals feel personal worth, dignity, and importance, partly through their sense of belonging to the school community. *School climate* is sometimes compared and contrasted with a related term, *school culture*. Hoy, Tarter, and Kottkamp (1991) highlight that the discourse on school or organizational climate comes from the discipline of psychology, especially social psychology, whereas school or organizational culture derives from anthropological and sociological perspectives. Climate is seen as the behavior in the organization and the stakeholders' perceptions of that behavior, while culture is thought to represent the values, norms, and shared assumptions and orientations that give an organization a distinctive identity and ideology (Anderson, 1982; Creemers & Reezigt, 1999; Hoy, 1990; Hoy & Feldman, 1999). While the terms are not interchangeable, there is a good deal of overlap, and some writers suggest that for convenience we should subsume culture under climate (Creemers & Reezigt, 1999; Freiberg, 1999).

It could be argued that *climate* is really a measure of school *culture* in this place at this time, with climate being a measure of how well the espoused values of culture are actually being lived out in the life of the organization. Interventions often approach changing students' views of the school, their sense of connection and desire to learn, for example, through changing the school's practices - discipline practices, classroom activities, and patterns of communication. In those cases, the changes in climate and culture seem so intertwined that meaningful distinctions in practice become difficult. We need to be able to discuss policy, organizational structure, and implementation steps as well as identity, sense of community, interpersonal connection, and satisfaction with current arrangements. In this paper, we will refer to the dynamic interaction of all of these elements as **school climate**.

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Sustaining school climate is an on-going endeavor because the school community is not static. New students, new teachers and changes in administrators all require the continuous renewal of a school community's intentional creation of a caring community. While Freiberg and Stein (1999) delineate a range of perspectives on school climate from quasi-factory models utilizing the language of input and outputs to those advancing caring community dynamics, we will be discussing school climate as a measure of success in achieving a caring school community.

Characteristics of Positive School Climate

Positive school climate has been described variously: as an environment of support and encouragement, warmth, and acceptance; as a place where students are valued and have a sense of safety and belongingness; and as a school where teachers and students can form relationships of genuine trust, respect, caring and appreciation (Berkowitz, Sherblom, Bier, & Battistich, 2005; Hansen & Childs, 1998; Lightfoot, 1983).

Climate factors at the school-wide level are an evaluation of the physical environment of the facilities, including classrooms, halls, cafeterias, and outdoor play-areas and schoolyards; the social systems, including relations between administration and teachers, among teachers, between school staff and parents, and between the adults in the building and the students; and the social expectations regarding behavior of all parties. Analogously, climate factors at the classroom level are the physical layout of the classroom, including its size and location in the school; the social systems, including relations among students and their individual and collective relations with the teacher; and the expectations on the part of the teacher for student behavior and outcomes, and on the part of the students for teacher behavior and student outcomes (Creemers & Reezigt, 1999; Fleming & Bay, 2004). Orderliness is also often considered as an aspect of school climate, as are noise levels, heating, cooling, and lighting, the size of the school, and whether and how frequently teachers and students have opportunities to interact in small groups (Freiberg, 1998).

Halpin and Croft (1963) are widely cited as having created the first useful model of organizational climate. They described organizations as being somewhere on a continuum from open to closed, with a clear preference for open organizations. Miles (1969) introduced the metaphor of organizational health to examine the properties of schools, arguing that a healthy school is one that adapts and copes well in the long run, continually developing and expanding

its coping abilities. Hoy and Feldman (1999) argue that researchers could not operationalize Miles' model with a set of reliable and valid measures. Other sources for conceptualizing school climate were Parsons, Bales, and Shils (1953), Parsons (1967), and Etzioni (1975), from which a healthy schools model was constructed (Hoy & Clover, 1986; Hoy & Feldman, 1999; Hoy, 1990). In this model, the organizational health of schools is operationally defined by seven interaction patterns whereby (a) school staff have positive morale; (b) the school has an academic emphasis; (c) the principal has sufficient influence to support teachers and protect the school from outside interference; (d) the principal is open and friendly; (e) the principal is both achievement and task oriented; and (f) the principal is able to secure resource support.

Similarly, "effective schools" have been defined as sharing the traits of high academic expectation; effective administrative support; a shared mission among teachers and staff regarding the school's purpose; a commitment to appropriate assessments; students' sense of efficacy with respect to learning; and student perceptions of a safe environment in which to learn (McEvoy & Walker, 2000). Additionally, many effective schools share traits that make them *communal school organizations* (Bryk & Driscoll, 1988). These include having a common agenda to foster meaningful and caring social interactions linking them to the community and school tradition and a visibly caring interactional style among the members. These factors are mutually reinforcing and create a *coherent organizational life* with powerful effects (Bryk & Driscoll, 1988).

Positive school climate, as described here, demands certain things for its support and maintenance. Marshall, Pritchard, and Gunderson (2003) assert that healthy schools need healthy districts and central administrations. Additionally, as schools develop a distinctive culture and climate, they may need to protect it by asking others to conform to their style. For example, Hansen and Childs (1998) report that a high school with a philosophy recognizing the importance of interpersonal relationships negotiated with a local university for student teachers to be placed at the school for a longer period of time, with the expectation as well that they would become involved in the school community and not remain as mere "strangers passing through."

School Climate and Student Achievement

There are a number of ways positive school climate can enhance student academic performance. After reviewing the field of social-emotional learning and its relation to building

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academic success, Walberg, Zins, and Weissberg (2004) concluded that safe, caring, and orderly environments are conducive to learning; that caring relations between teachers and students foster a desire to learn and a connection to school; and that socially engaging teaching strategies focus students on their learning tasks. Pritchard and Marshall (2003) supported this link between environment and learning, reporting higher levels of achievement in writing at both the 8th and 11th grades for students in schools in healthy districts.

Programs that improve students' interpersonal capacities, whether through developing social-emotional awareness and self-reflection, practicing perspective taking, promoting empathy and compassion, or teaching conflict resolution, all foster an ability to get along with others and be a responsible member of a family, a classroom, and a school (Berkowitz, Sherblom, Bier, & Battistich, 2005; CASEL, 2003; Zins, Weissberg, Wang, & Wahlberg, 2004). Prevention programs fostering social-emotional learning improved school's dropout rates and non-attendance, both important for school success. Schools are inherently social environments and learning is a social process. Pro-social behavior is linked with positive academic and intellectual outcomes and is predictive of scores on standardized achievement tests (Zins, Bloodworth, Weissberg, & Wahlberg, 2004). Enhancing communication skills can provide students with the emotional vocabulary needed to identify and communicate their feelings and needs. Having this avenue of self-expression allows them to deal with some things that otherwise would have resulted in aggression and conflict (McEvoy and Walker, 2000). Additionally, academic interventions with antisocial students are likely to have pro-social effects if the intervention enhances bonds between teachers and students.

The Child Development Project, which developed the CSC program, argued that schools need a three-pronged approach: emphasizing a sense of community, conveying high expectations of student achievement, and developing engaging opportunities to learn (Schaps, Battistich, & Solomon, 2004). They assert that students' level of engagement with school can best be understood in terms of whether and in what ways students' psychological needs are being met. Specifically, they highlighted students' needs for autonomy, belonging, and competence. Labeling these the ABCs of the Caring School Community approach emphasizes the program's design to integrate the individual and the communal, the cognitive and the emotional, and the social-emotional and the academic. Their model argues that as students' basic social and psychological needs are met, they will become attached to the school community, just as they do

with their families or other social groups. As students develop, both cognitively and in their understanding of their community's expectations and values, they come to identify with those values and expectations and develop an internal sense of allegiance and personal sense of obligation toward upholding them. One's values direct one's behavior; therefore, students in CSC schools tend to behave in ways that are socially congruent with the developing school culture of trust, engagement, and caring (Schaps, Battistich, & Solomon, 2004). One interpretation is that CSC hooks students by offering them the social acceptance and sense of community they so desperately want, and in so doing, opens them up to the academic gains that result when students become connected to the school and to teachers.

A positive sense of community requires four things (McMillan & Chavis, 1986): a feeling of membership; a sense that one matters; a sense that a member's needs will be met by being a member; and a shared emotional connection. Positive peer associations and offenses by students are inversely related – the better the sense of belonging to a caring community, the less student disruption (Welsh, 2000). Part of that sense of connection to a caring community is that students perceive themselves to be respected by school personnel and believe that school rules are fair, both of which have been found to be inversely related to how likely it is that students will break those rules. Connection to community also involves a belief that the school community's rules and expectations are clear, and that students have influence over what those rules will be. Both of these factors contribute to students' perceptions of the school as a safe place (Welsh, 2000).

Schools with lower-than-average SES indicators tend to have lower-than-average sense of school community. Independent of poverty, teacher warmth and supportiveness and classroom practices which teach cooperation are strongly related to students' sense of positive community (Zins, Weissberg, Wang, & Wahlberg, 2004). Students who develop a positive sense of school community report feelings of enjoyment while attending school which, in turn, make them more task-oriented. Students who develop a positive sense of school community internalize the school community's emphasis on learning and educational aspirations and are motivated to do well (Schaps, Battistich, & Solomon, 2004). Brookover, Flood, Schweitzer and Weisenbaker (1997) argued that teacher expectations for student performance influence student achievement through influencing the student's own perceptions of their capability. Parent and community involvement have also been found to positively influence academic achievement and

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school climate (Stevens & Sanchez, 1999). Lee and Smith (1999) argue, however, that without a clear emphasis on *academic press* -- that is, a school wide cultural emphasis on academic excellence -- then fostering a sense of community is not enough in itself to produce academic achievement gains among low-income, urban students. McEvoy and Walker (2000) submit that the success of prevention and intervention programs hinges on their ability to identify and modify school climates in which academic failure and antisocial behavior emerge. Research consistently supports a direct relationship between student time on task and student academic achievement; therefore, the elimination of disruptive behavior, allowing greater educational focus, should foster academic achievement (McEvoy & Walker, 2000).

Method

This study is part of a larger experimental, four-year, federally-funded study on the efficacy of The CHARACTER*plus* Way[®]. Sixty-four schools were stratified and randomly selected for participation in the project. The strata were based on socio-economic level, strength of student achievement, and school type. Schools in Missouri that had not implemented CHARACTER*plus*[®] were the sampling frame. The schools were stratified into four groups:

- 16 randomly selected elementary schools in districts with high schools
- 16 randomly selected junior high schools or middle schools
- 16 randomly selected high schools
- 16 schools in small districts with
 - 8 secondary schools (7-12)
 - 8 elementary schools in small districts

Baseline data from students, staff, parents, and implementation surveys were collected during February and early March 2003. Student and staff surveys were administered by project-trained data collectors. The parent survey was mailed in school envelopes to random samples of 100 parents (or the actual number of parents, whichever was smaller) of 4th, 8th and 11th grade students from each of the 64 schools.

The data-producing sample consisted of 3,619 students in 4th, 8th and 11th grades who were administered the CHARACTER*plus* Student Survey. The number of staff surveys was 1,530; implementation surveys, 1482; and parent surveys, 1,200. The parent survey had a 45% response rate.

Achievement data were drawn from the 2003 Missouri Assessment (MAP) in communication arts and math, administered during the spring. Communication arts is tested at grades 3, 7, and 10; math is tested at grades 4, 8 and 11.

Surveys

Data were collected using the CHARACTER*plus*[®] Student Survey, Staff Survey, Parent Survey and Implementation Survey. The first three surveys were developed and piloted in an earlier state funded project. The Implementation Survey is a new survey based on the Character Education Partnership Eleven Principals and the CHARACTER*plus* Ten Essentials. It was designed specifically for this project.

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The surveys are optical scan instruments designed for effective data collection and capturing. The factors measured are:

Student Survey – Feelings of Belonging, School Expectations, Sense of Autonomy & Influence, Sense of Altruism, Feelings of Competence, Parent Involvement

Most of the reliabilities were in the .70s and .80s.

Staff Survey – Student’s Feelings of Belonging, School Expectations, Parent and Staff Relations, Staff Culture of Belonging, and School Leadership. The reliabilities were in the high .80s and .90s.

Parent Survey – Student’s Feelings of Belonging, School Expectations, Parent and Staff Relations, School Quality, and Parent Involvement. The reliabilities were in the .90s with the exception of Parent Involvement, which was .64.

Implementation Survey – The Eleven Principles, which are the basis for the survey factors, are as follow:

- P1** Character education promotes core ethical values as the basis of good character.
- P2** Character is comprehensively defined to include thinking, feeling, and behavior.
- P3** Effective character education requires an intentional, proactive, and comprehensive approach that promotes the core values in all phases of school life.
- P4** The school is a caring community.
- P5** To develop character, the school provides students opportunities for moral action.
- P6** Effective character education includes a meaningful and challenging academic curriculum that respects all learners and helps them to succeed.
- P7** Character education should strive to develop students’ intrinsic motivation for developing good character.
- P8** The school staff is a learning and moral community in which all share responsibility for character education and attempt to adhere to the same core values that guide the education of students.
- P9** Staff and students demonstrate moral leadership.
- P10** The school recruits parents and community members as full partners in the character-building effort.
- P11** Evaluation of character education assesses the character of the school, the school staff’s functioning as character educators, and the extent to which students manifest good character.

Achievement

The MAP tests are administered each March with the scores posted on the Missouri Department of Elementary and Secondary Education web site during September. The aggregate data for each of the schools in communication arts and math were obtained from the web site. The scores obtained were the percent of students in the lowest category of performance (usually viewed as unsatisfactory) and the percent of students in the highest category as defined by the state. A third category was calculated as the percent of students classified as satisfactory (100 – lowest category).

Results

The aggregate data from the student, staff, parent and implementation surveys were related to the communication arts and math achievement results using backwards stepwise regression. Two analyses were run for each achievement area. First was the relation between the school climate variables as measured by the four surveys and the percent of students in the highest category (identified here as proficient); second, the relation between the climate variables and the percent of students in all but the lowest category (identified here as satisfactory).

Simple Correlations

The first step in the analysis was determination of the Pearson correlation coefficients. The 27 climate variables were correlated with the four achievement scores. Ninety-one of the 104 correlations were significant (see Table 1, next page), providing strong evidence of the relation between school climate and student achievement. The strongest relation to student achievement was with student perceptions of parent involvement in school. This single variable accounted for over two-thirds of the variance among schools in three of the four analyses and over 40% of the variance in the fourth analysis.

Other variables with high (.70s) correlations to achievement were students' sense of autonomy and self-reported altruism. Variables with moderately high (.50s and .60s) correlations to achievement were parents' perceptions of their involvement in school, staff perceptions of school expectations, students' perceptions of school expectations, parents' perceptions of the students' feeling of belonging, and staff perceptions of staff and parent relations. Variables not highly related to student achievement included all of the Eleven Principles of Effective Character Education.

The correlations among the math and communication arts were high in the category of math proficient, math satisfactory, and communication arts satisfactory, suggesting that schools demonstrating high achievement in any one of these areas will also show high achievement in the others. Communication arts proficient correlated only moderately with the other areas, even communication arts satisfactory.

Table 1. Correlation of Survey Factors for 69 Schools with MAP Scores 2003

	Math		Communication Arts	
	Proficient	Satisfactory	Proficient	Satisfactory
Feelings Belonging - Parent	.526(**)	.515(**)	.247(*)	.530(**)
School Expectations - Parent	.450(**)	.442(**)	.397(**)	.431(**)
Staff-Parent - Parent	.463(**)	.460(**)	.347(**)	.445(**)
School Quality - Parent	.410(**)	.399(**)	.201	.418(**)
Parent Involvement - Parent	.674(**)	.673(**)	.613(**)	.631(**)
Feelings Belonging - Staff	.364(**)	.331(**)	.118	.372(**)
School Expectations - Staff	.641(**)	.620(**)	.416(**)	.635(**)
Staff-Parent - Staff	.534(**)	.516(**)	.346(**)	.527(**)
Staff Culture - Staff	.268(*)	.261(*)	.152	.268(*)
School Leadership - Staff	.280(*)	.269(*)	.186	.279(*)
Feelings of Belonging – Student	.463(**)	.437(**)	.264(*)	.456(**)
School Expectations – Student	.564(**)	.530(**)	.386(**)	.553(**)
Sense of Autonomy – Student	.739(**)	.716(**)	.456(**)	.734(**)
Self-Reported Altruism – Student	.744(**)	.707(**)	.415(**)	.746(**)
Sense of Competence	.197	.168	.016	.213
Parent Involvement	.877(**)	.866(**)	.650(**)	.857(**)
Principle 1	.334(**)	.318(**)	.239(*)	.335(**)
Principle 2	.339(**)	.324(**)	.243(*)	.339(**)
Principle 3	.292(*)	.277(*)	.215	.292(*)
Principle 4	.415(**)	.399(**)	.281(*)	.417(**)
Principle 5	.312(**)	.289(*)	.170	.322(**)
Principle 6	.342(**)	.328(**)	.200	.350(**)
Principle 7	.429(**)	.420(**)	.294(*)	.433(**)
Principle 8	.343(**)	.328(**)	.237(*)	.346(**)
Principle 9	.240(*)	.224	.142	.250(*)
Principle 10	.311(**)	.298(**)	.182	.326(**)
Principle 11	.276(*)	.260(*)	.163	.287(*)
Math Proficient		.987(**)	.639(**)	.992(**)
Math Satisfactory			.680(**)	.971(**)
Reading Proficient				.542(**)

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Regression

Backwards stepwise regression was used to determine the multiple relation between climate variables and student achievement. School level – elementary, middle school, and high school – was also included in the analyses. Four analyses were run using math and communication arts achievement at both the proficient and satisfactory levels as the dependent variables. The predictor variables were the 27 parent, staff, student, and implementation factors and school level.

Percent of Students Proficient in Math

The first analysis was for the multiple relation between the percent of students who were proficient in math and the 27 climate variables and school level. The unit of analysis was the school. Results from the 21 steps in the regression model are presented in Table 2 (next page). The correlations were high, ranging from .96 to .97. As variables were eliminated, there was almost no change in correlation. The final result was that five climate variables and school level accounted for 91% of the variance in math achievement among the 64 schools. These variables were (simple correlations):

- School Level (- .89).
- Students' Feelings of Belonging (.46).
- Self-Reported Altruism (.74).
- Students' Perceptions of Parent Involvement (.88).
- Principle 7: Character education should strive to develop students' intrinsic motivation for developing good character (.43).
- Principle 8: The school staff is a learning and moral community in which all share responsibility for character education and attempt to adhere to the same core values that guide the education of students (.34).

Table 2. Backward Stepwise Regression Model Summary for Predicting Percent of Students Proficient in Math.

Step	R	R Square	Std. Error
1	.969	.939	3.831
2	.969	.939	3.783
3	.969	.939	3.737
4	.969	.939	3.694
5	.969	.939	3.654
6	.969	.938	3.616
7	.969	.938	3.582
8	.968	.938	3.549
9	.968	.938	3.516
10	.968	.937	3.497
11	.968	.937	3.470
12	.967	.936	3.459
13	.967	.935	3.447
14	.967	.935	3.430
15	.966	.934	3.422
16	.965	.931	3.450
17	.964	.928	3.486
18	.962	.926	3.510
19	.961	.924	3.539
20	.960	.921	3.573
21	.958	.918	3.607
22	.957	.916	3.619
23	.956	.914	3.631

Altruism and parent involvement overlapped with those factors identified through simple correlation. A noted difference is the addition of school level with a high negative relation to the number of students classified as math proficient. This indicates that as students progress from elementary through middle and high school, the percent of students who demonstrate high levels of math achievement decreases. Also important was adding students' feelings of belonging, intrinsic motivation, and staff as a learning and moral community as significant variables.

These factors were significant predictors of the percent of students proficient in math (see Table 3, next page). The coefficients for multiple prediction are provided in Table 4 (next page). The negative coefficients reflect the overlap in the predictor variables.

Table 3. ANOVA for Regression Model at Step 21 for Predicting Percent of Students Proficient in Math.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	8539.263	6	1423.211	107.92	.000
Residual	804.388	61	13.187		
Total	9343.651	67			

Table 4. Regression Coefficients and t-tests for Climate Variables Predicting Percent of Students Proficient in Math.

Variable	Unstandardized Coefficient	Standardized Coefficient	B	t	Sig.
(Constant)	-22.524	6.768		-3.328	.001
Feelings of Belonging – Student	-.300	.081	-.258	-3.696	.000
Self-Reported Altruism – Student	.490	.125	.364	3.916	.000
Parent Involvement – Student	.403	.087	.441	4.632	.000
Principle 7	.375	.121	.392	3.103	.003
Principle 8	-.272	.105	-.309	-2.580	.012
School Level	-4.576	1.113	-.324	-4.113	.000

Percent of Students Satisfactory in Math

The second analysis was for the multiple relation between percent of students who were satisfactory in math and the 27 climate variables and school level. The unit of analysis was the school. Results from the 22 steps in the regression model are presented in Table 5 (next page). The correlations were high, ranging from .96 to .97– the same as the previous analysis. As variables were eliminated, there was almost no drop in correlation. The final result was that seven climate variables and school level accounted for 92% of the variance in math achievement among the 64 schools. These variables were (simple correlations):

- School Level (-.91).
- Parent Rating of School Quality (.40).
- Students’ Feelings of Belonging (.44).
- Self-Reported Altruism (.71).

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- Students’ Perceptions of Parent Involvement (.87).
- Principle 7: Character education should strive to develop students’ intrinsic motivation for developing good character (.42).
- Principle 8: The school staff is a learning and moral community in which all share responsibility for character education and attempt to adhere to the same core values that guide the education of students (.33).

Students’ self-reported altruism and perceptions of their parents’ involvement in school were identified as two variables that had high, single order correlations. Again, the two principles of intrinsic motivation and staff as a learning and moral community contribute to the prediction of math success. The students’ feelings of belonging factor was an important contributor to predicting math success in both analyses. New to this analysis were parent ratings of school quality.

These factors were significant predictors of the percent of students proficient in math (see Table 6, next page). The coefficients for multiple prediction are provided in Table 7 (next page).

Table 5. Backward Stepwise Regression Model Summary for Predicting Percent of Students Satisfactory in Math.

Step	R	R Square	Std. Error
1	.967	.935	5.46
2	.967	.935	5.39
3	.967	.935	5.33
4	.967	.935	5.27
5	.967	.935	5.21
6	.967	.934	5.15
7	.967	.934	5.10
8	.967	.934	5.05
9	.966	.934	5.01
10	.966	.933	4.97
11	.966	.933	4.94
12	.966	.932	4.91
13	.965	.932	4.88
14	.965	.931	4.87
15	.964	.930	4.87
16	.963	.928	4.87
17	.963	.927	4.88
18	.961	.924	4.91
19	.960	.922	4.94
20	.959	.920	4.97
21	.958	.918	4.97
22	.957	.916	4.98

Table 6. ANOVA for Regression Model at Step 22 Predicting Percent of Students Satisfactory in Math.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	16382.46	7	2340.35	94.01	.000
Residual	1493.54	60	24.89		
Total	17876.01	67			

Table 7. Regression Coefficients and t-tests for Climate Variables Predicting Percent of Students Satisfactory in Math.

Variable	Unstandardized Coefficient	Standardized Coefficient	B	t	Sig.
(Constant)	14.014	9.329		1.502	.138
School Quality – Parent	.111	.062	.082	1.804	.076
Feelings of Belonging – Student	-.379	.111	-.236	-3.400	.001
Self-Reported Altruism – Student	.372	.181	.200	2.062	.044
Parent Involvement – Student	.565	.122	.447	4.633	.000
Principle 7	.590	.166	.445	3.545	.001
Principle 8	-.482	.146	-.397	-3.316	.002
School Level	-8.157	1.539	-.418	-5.301	.000

Percent of Students Proficient in Communication Arts

- The third analysis was for the multiple relation between the percent of students proficient in communication arts and the 27 climate variables and school level. The unit of analysis was the school. Results from the 18 steps in the regression model are presented in Table 8 (next page). The correlations were high ranging from .88 to .91. As variables were eliminated, there was little drop in correlation. The final result was that student self-reported altruism (.45) and school level (-.86) accounted for 77% of the variance in reading achievement among the 64 schools.

Table 8. Backward Stepwise Regression Model Summary for Predicting Percent of Students Proficient in Communication Arts.

Step	R	R Square	Std. Error
1	.904	.818	3.22
2	.904	.818	3.18
3	.904	.818	3.14
4	.904	.818	3.10
5	.904	.818	3.07
6	.904	.818	3.03
7	.904	.817	3.00
8	.904	.817	2.96
9	.904	.817	2.93
10	.904	.817	2.91
11	.903	.816	2.88
12	.903	.815	2.86
13	.902	.814	2.83
14	.902	.814	2.81
15	.902	.813	2.79
16	.901	.813	2.77
17	.901	.812	2.75
18	.900	.810	2.73
19	.899	.809	2.72
20	.898	.806	2.71
21	.895	.801	2.72
22	.892	.796	2.73
23	.890	.792	2.74
24	.889	.791	2.72
25	.887	.787	2.73
26	.884	.781	2.74
27	.880	.774	2.76

The variance accounted for increases to 79% by adding in:

- Students’ Feelings of Belonging (.26).
- Staff Perceptions of Students’ Feelings of Belonging (.12).
- School Leadership (.19).

These factors were significant predictors of the percent of students proficient in communication arts (see Table 9, next page). The coefficients for multiple prediction are provided in Table 10 (next page).

Table 9. ANOVA for Regression Model at Step 18 Predicting Percent of Students Proficient in Reading.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1680.90	2	840.45	109.63	.000
Residual	490.64	64	7.66		
Total	2171.54	66			

Table 10. Regression Coefficients and t-tests for Climate Variables Predicting Percent of Students Proficient in Reading.

Variable	Unstandardized Coefficient	Standardized Coefficient	B	t	Sig.
(Constant)	50.156	4.465		11.234	.000
Self-Reported Altruism	-.177	.053	-.271	-3.349	.001
Testing	-7.084	.550	-1.041	-12.871	.000

Percent of Students Satisfactory in Communication Arts

The final analysis was for the multiple relation between percent of students who were satisfactory in communication arts and the 27 climate variables and school level. The unit of analysis was the school. Results from the 18 steps in the regression model are presented in Table 11 (next page). The correlations were high ranging from .94 to .95. As variables were eliminated, there was almost no drop in correlation. The final result was that nine climate variables accounted for 89% of the variance in communication arts among the 64 schools. These variables were (simple correlations):

- Principle 9: Staff and students demonstrate moral leadership (.25).
- Parent Rating of School Quality (.42).
- School Leadership (.28).
- Staff Perceptions of School Expectations (.64).
- Principle 11: Evaluation of character education assesses the character of the school, the school staff's functioning as character educators, and the extent to which students manifest good character (.29).
- Students' Feelings of Belonging (.46).
- Self-Reported Altruism (.75).
- Students' Perceptions of Parent Involvement (.86).

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- Principle 7: Character education should strive to develop students’ intrinsic motivation for developing good character (.43).
- Principle 10: The school recruits parents and community members as full partners in the character-building effort (.33).
- Principle 8: The school staff is a learning and moral community in which all share responsibility for character education and attempt to adhere to the same core values that guide the education of students. (.35).
- School Level (-.83).

These results suggest that schools with high levels of student achievement in language arts are schools with moral leadership. The staff at these schools are members of learning communities and parents and community members are full partners who focus on intrinsic motivation as the basis for behavioral expectations. Students feel that they belong, report being altruistic, and perceive their parents to be involved in school processes.

These factors were significant predictors of the percent of students proficient in reading (see Table 12, next page). The coefficients for multiple prediction are in Table 13 (next page).

Table 11. Backward Stepwise Regression Model Summary for Predicting Percent of Students Satisfactory in Communication Arts.

Step	R	R Square	Std. Error
1	.952	.907	.839
2	.952	.907	.843
3	.952	.907	.847
4	.952	.907	.850
5	.952	.907	.854
6	.952	.907	.857
7	.952	.907	.860
8	.952	.906	.863
9	.952	.906	.865
10	.952	.905	.867
11	.951	.905	.869
12	.951	.904	.871
13	.950	.903	.872
14	.950	.902	.873
15	.949	.901	.874
16	.948	.899	.874
17	.946	.896	.873
18	.944	.892	.870

Table 12. ANOVA for Regression Model at Step 18 Predicting Percent of Students Satisfactory in Communication Arts.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1265.36	11	115.03	41.12	.000
Residual	153.85	55	2.79		
Total	1419.21	66			

Table 13. Regression Coefficients and t-tests for Climate Variables Predicting Percent of Students Satisfactory in Communication Arts.

Variable	Unstandardized Coefficient	Standardized Coefficient	B	t	Sig.
(Constant)	31.965	4.952		6.454	.000
School Quality - Parent	.048	.022	.125	2.161	.035
School Expectations - Staff	.166	.084	.208	1.978	.053
School Leadership - Staff	-.051	.027	-.140	-1.902	.062
Belonging - Student	-.142	.038	-.313	-3.705	.000
Altruism - Student	.162	.067	.306	2.437	.018
Parent Involvement - Student	.246	.029	.687	8.389	.000
Principle 7	.181	.058	.482	3.144	.003
Principle 8	-.302	.091	-.880	-3.323	.002
Principle 9	.155	.083	.443	1.867	.067
Principal 10	.151	.074	.339	2.041	.046
Principal 11	-.136	.061	-.323	-2.230	.030

Discussion

Educators might rightly ask: why should we try character education? Why buy into this school reform movement? What evidence do you have that this is effective? This paper has outlined two sources of evidence in answer. First, as summarized above, the school research literature predicts a positive correlation between a healthy school climate and student achievement, detailing how qualities of the former can influence the latter. It is this measure of influence that climate has that character education is attempting to leverage.

Second, in this study with a randomly selected sample of 64 elementary, middle and high schools, we found strong correlations between achievement (as reflected in standardized test scores) and those elements of school climate most emphasized by character education. This suggests, first, that the dynamic between the two already exists in these schools and, second, that there is reason to believe character education might be able to leverage school climate to positively impact student achievement.

Two questions that remain to be answered are: “how much implementation of character education is needed to improve school climate,” and “what impact does that have on student achievement?” These questions should be answered when this current character education project concludes.

While school climate is assessed through perceptions of community members, this is not primarily a perceptual issue. The perceptions of students, staff, parents, and administrators are largely based on actual experience of interactions: of feeling welcomed or not, supported or not, respected or not, safe or not. Character education demands certain kinds of leadership, certain ways of relating (inclusive, respectful, collaborative, caring), and certain ways of engaging (staff buy-in, commitment, and initiative). The focus on improving community fundamentally shapes the tenor and content of communications among school staff, with families, and with students. When speaking about community, *the school* is a social unit, embodied in hundreds of interpersonal relationships, which in turn are embedded in a layered social context defining them: what it means to be teacher, student, principal, or parent. Changing those relationships changes the school.

The data reported in this paper strongly support the contention that healthy schools with strong positive cultures will result in high student achievement. However, it raises more questions about United States education than it answers.

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The very high negative relation between school level and student achievement in math is troubling. It would seem that as students increase in grade level, their math knowledge and skills decrease in relation to established standards. This may reflect the diversity in math offerings and requirements at the middle and high school levels in schools. Or, it may be a reflection on the standards. Are the standards at the higher grade levels appropriate for all students? Or, it may reflect on the way that the standards are assessed. These are some of the questions that need to be addressed.

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References begin on next page.

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