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Evaluation of the School-wide Positive Behavioral Support Program in Eight North Carolina Elementary Schools

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Executive Summary

The purpose of this report is to provide the North Carolina Department of Public Instruction (NCDPI) with information about teachers' responses to School-wide Positive Behavioral Support (PBS) and key educational outcomes on students in North Carolina elementary schools implementing School-wide (PBS). A web-based survey of teachers at eight elementary schools implementing School-wide positive behavior support according to national criteria was administered to assess teacher response to School-wide PBS. Data from the North Carolina Education Data Center was used to assess student outcomes related to academic performance, school suspensions, and teacher turn-over rates in the eight study schools compared with 264 NC elementary schools that had started School-wide PBS.

Key findings to emerge from the web-based teacher survey are:

1. In spite of the fact that all schools were selected for the study because they were implementing School-wide PBS according to national criteria, only 92% of teachers reported that it is *currently in place*. One possible explanation for this is that the program has lapsed at some schools due to changes in administration, or that newer teachers are not as aware of the program.

2. Teachers in all study schools reported that school-wide behavioral supports are *mostly in place*, although there were statistically significant differences across study schools. Almost three quarters (74%) reported that school-wide behavioral supports improved student behavior *somewhat* to *a lot*. The two school-wide behavioral support systems that teachers reported as least likely to be in place are the monthly/quarterly feedback on student behavior patterns, and a budget for teaching, rewards, and on-going planning.

3. Teachers also reported that classroom-wide behavior supports are *mostly in place* in their schools. Almost all (90%) reported that classroom-wide behavioral supports improved student behavior *somewhat* to *a lot*. The two classroom-wide systems that teachers reported as least likely to be in place are classroom options to allow classroom instruction to continue when problem behavior occurs, and consistent consequences for problem behaviors.

4. Teachers reported that targeted interventions to support students who engage in problem behaviors are only *somewhat in place* in their schools. The targeted intervention least likely to be in place was providing formal opportunities for families to receive training on positive behavioral support and positive parenting strategies. Teachers also reported less satisfaction with staff designated to provide support for at-risk students compared to satisfaction with administrative support for implementing School-wide PBS.

5. To our knowledge, this is the first study to find a positive association between the level of implementation of School-wide PBS and school climate. Specifically, we found that the

level of school-wide behavioral support systems in place positively predicted school climate. In contrast, neither classroom-wide systems of behavioral support, nor targeted interventions to support students were significant predictors of school climate.

6. Overall, results from the teacher survey indicate that school-wide PBS is partially in place in study schools. Since numerous studies have documented that students in schools with better school climate have higher achievement and better socio-emotional health, we recommend that efforts be made at the state, district and school level to increase the level of implementation of School-wide PBS in NC elementary schools (Scales, 1999).

7. To increase the level of implementation of School-wide PBS, efforts to improve school-wide support systems should focus on allocating more time and resources toward monitoring students' behaviors and providing feedback to teachers on a regular basis. At the classroom level, efforts should focus on finding ways to support teachers to continue their teaching when problem behavior occurs. Targeted interventions for at risk students should focus on developing strategies and resources to train parents in positive behavioral support and positive discipline skills.

Key findings to emerge from the analyses of data from the North Carolina Education Research Data Center are:

1. When comparing the eight study schools in the year before and after they began implementing School-wide PBS, there were no statistically significant changes in any of the outcomes of interest. Given the small number of schools in this analysis, however, the power to detect differences was very low.

2. When examining the much larger sample of elementary schools in NC who have adopted School-wide PBS, during the first year after implementing School-wide PBS there were statistically significant increases in composite performance, fifth grade promotion and short term suspensions.

3. There were no statistically significant differences from baseline years (i.e. Years prior to the school adopting School-wide PBS) to having School-wide PBS for more than one year (School-wide PBS post year) on study outcomes. Thus, there was no evidence that the beneficial effects found for the initial year of implementation persisted beyond that year. In order to sustain the initially positive effects of School-wide PBS it may be necessary to focus on the ongoing quality of program implementation.

Introduction

Background

School-wide Positive Behavioral Support (PBS) is a school-wide program that consists of positive behavior training and reinforcement of good behavior. Encouraging good behavior is hypothesized to decrease a range of negative school outcomes such as: the number of suspensions; the number of days suspended, the number of arrests for specific reportable offenses, and the amount of teacher turnover. It is also believed that encouraging good behavior will have positive effects on end of grade test scores, attendance and teacher work satisfaction.

North Carolina public schools began implementing School-wide PBS in 2001, as part of its State Improvement Program, and as of June 2007, it is in use in 302 (17%) of the state's 1,752 public elementary schools (NCDPI, 2007). Eight of these schools have implemented School-wide PBS using seven major program components that are considered the gold standard for optimal program success: 1) an agreed upon and common approach to discipline; 2) a positive statement of purpose; 3) a small number of positively stated expectations for all students and staff; 4) procedures for teaching these expectations to students; 5) a continuum of procedures for encouraging displays and maintenance of these expectations; 6) a continuum of procedures for discouraging displays of rule-violating behavior; and 7) procedures for monitoring and evaluating the effectiveness of the discipline system on a regular and frequent basis (Anderson et al. 2005).

Purpose

The purpose of this report is to present results of an evaluation of the effects of School-wide PBS at eight North Carolina public elementary schools that are implementing the program according to national criteria compared with all NC elementary schools that have ever implemented School-wide PBS.

Part 1 presents results of a web-based survey administered to all teachers in the eight elementary schools implementing School-wide PBS according to national criteria for implementation. Through the web-based survey we sought to answer the following questions:

- What school-wide behavioral support systems are in place in study schools?
- How satisfied are teachers with the support systems in place in their schools?; and
- How has School-wide PBS affected teacher perception of school climate and student behavior?

Part 2 presents results of analyses of data from the North Carolina Education Research Data Center to answer the following questions about School-wide PBS:

- What is the effect of School-wide PBS on academic performance, grade promotion, and short term suspension rates in study schools compared to all NC elementary schools that have ever implemented School-wide PBS?

- What is the effect of School-wide PBS on teacher turn-over rates in study schools compared to all NC elementary schools that have ever implemented School-wide PBS?

Web-based Teacher Survey

Survey Development and Measures

To develop the survey, we conducted a review of the current literature on the evaluation of School-wide PBS. To measure School-wide PBS and we adapted questions from the Effective Behavior Support (EBS) Self-Assessment Survey, (Version 1.5) developed by Sugai, et al. 2000. The EBS Survey has been widely used by school staff for initial and annual assessment of effective behavior support systems in schools. The survey examines the status and need for improvement of four behavior support systems: 1) school-wide discipline systems, 2) non-classroom management systems, 3) classroom management systems, and 4) systems for individual students engaging in chronic problem behaviors. The survey questions for this study included three of these support systems, including classroom supports in other teachers' classrooms. We chose to exclude questions about non-classroom management systems such as those used in hallways, cafeterias and playgrounds out of concern for the length of the survey and its effect on response rate. In addition, systems for individual students were referred to as targeted interventions in the survey and in this report. To measure school climate, we adapted 12 study questions from the Classroom Climate Scale developed by Vessels (1998) and modified by the Multi-site Violence Prevention Project (2004) for use with middle school students. Copies of the original measures from which our measures were developed can be found in the Appendix. We used Views Flash 5.3 survey software to design, and administer the survey.

Survey Procedures

To assure maximum participation of teachers from each school in the study, the Section Chief of Behavioral Support Services, Exceptional Children Division, NC Department of Public Instruction contacted principals at all eight study schools in order to describe the study and enlist their cooperation. Principals were asked to send an email list of the names of all core teachers at the school to the project director at the Center for Child and Family Policy. Principals were assured that the survey responses provided by their staff would be anonymous. DPI waived consent for this process.

Teachers were first notified by email that the survey to evaluate the implementation of PBS at their schools was coming. The following week teachers received an invitation to participate in the web-based survey via cover letter provided by the project evaluator. A link to the consent to participate page on the Internet was provided in the body of the email. If teachers consented, they were directed to the first page of the survey. If teachers did not consent, no further contact occurred. The survey remained open for completion for four weeks. A reminder email was sent to those teachers who did not respond by the end of each week.

Upon registering to complete the survey, each teacher was assigned an identification number (ID) and thereafter only the ID number was recorded for purposes of the analysis. In addition, each school received a unique ID and school data from surveys were identified only by that number during the analyses. Only CCFP project staff could match the teacher and school ID with the identifying data and outcome measures.

Survey Analysis

All data were analyzed using SPSS Version 15.

Evaluation Findings

Response Rate

The survey was sent by email to a total 223 teachers from eight North Carolina elementary schools that have been implementing School-wide PBS according to national criteria. All (18) teachers from one elementary school were unable to respond to the survey due to problems with their email addresses, and were thus excluded from the study. Of those receiving the survey, 151 (74%) started the survey, however, completed surveys were received from only 101 (67%) of teachers, indicating that some teachers may have abandoned the survey before finishing it and/or had difficulty submitting the survey after completing it. The overall response rate for the survey – based on completed surveys received – was 49%; we excluded an additional 15 cases where teachers completed only school identification information. Thus, the findings below are based on responses from 86 teachers in 7 seven elementary schools (Table 1).

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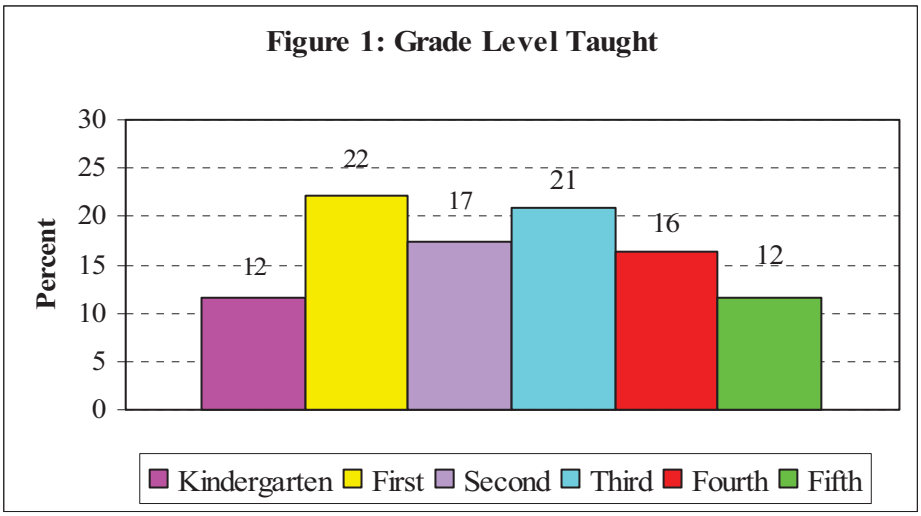
Table 1: Survey Response Rate

Mailed Survey		Received Survey		Started Survey		Completed Survey		Response Rate		Valid Cases		Missing	
#	%	#	%	#	%	#	%	#	%	#	%	#	%
223	100.0	205	0.92	151	0.74	101	0.67	101	0.49	86	0.85	15	0.14

Response Rate by Grade Level Taught

Figure 1 below shows that teachers from all elementary school grades i.e. kindergarten through grade 5, responded to the survey. First grade teachers (22%) and third grade teachers (21%) responded more frequently to the survey than teachers from other grades.



Teaching Experience

Table 2 shows that the average number of years respondents reported teaching at their current school is a little over 6 years. The average number of years respondents reported teaching overall is a little over 10 years (Table 3). Thus, teachers that responded to the survey are highly experienced professionals.

Table 2: Years of Teaching at Current School

School	Mean	N	Std. Deviation
Baldcreek	10.50	4	9.68
Balfour	5.30	10	7.27
Burgaw	7.82	17	7.31
Southwood	6.13	15	7.46
Supply	6.70	10	4.50
Wrightsboro	5.95	20	6.70
Oakgrove	2.90	10	1.79
Total	6.22	86	6.59

Table 3: Years of Teaching
Overall

School	Mean	N	Std. Deviation
Baldcreek	14.00	4	9.97
Balfour	6.00	10	7.20
Burgaw	10.53	17	8.86
Southwood	11.47	15	8.75
Supply	13.50	10	6.74
Wrightsboro	10.80	20	10.61
Oakgrove	7.30	10	7.07
Total	10.36	86	8.78

Is your school currently implementing School-wide PBS?

Table 4 shows that almost all teachers (92%) reported that School-wide PBS is currently being implemented in their schools; less than 6% reported that it is not currently being implemented. Only 2% reported that they did not know if School-wide PBS is being implemented.

Table 4: Currently Implementing School-wide PBS

School	Yes		No		Don't know			
	#	%	#	%	#	%	#	%
Baldcreek	4	4.7	0	0.0	0	0.0	4	4.7
Balfour	19	11.0	0	0.0	0	0.0	10	11.6
Burgaw	16	6.0	1	1.2	0	0.0	17	19.8
Southwood	15	17.4	0	0.0	0	0.0	15	17.4
Supply	7	8.1	2	2.3	1	1.2	10	11.6
Wrightwboro	20	23.3	0	0.0	0	0.0	20	23.3
Oakgrove	7	8.1	2	2.3	1	1.2	10	11.6
Total	79	91.9	5	5.8	2	2.3	86	100.0

To what degree are school-wide behavioral support systems in place in your school?

School-wide was defined in the survey as involving all students, all staff and all settings (Sugai et al. 2000). Teachers were asked to respond to the school-wide items using the following response categories: 5 = Completely in place; 4 = Mostly; 3 = Somewhat; 2 = Barely; and 1 = Not at all in place. The results in Table 5 are shown as means (M) with standard deviations.

Teachers reported that School-wide Positive Behavioral Support systems are *mostly in place* in their schools (M = 4.17). School-wide behavioral support systems that received the strongest endorsement as being in place included: A small number of positive clearly stated student expectations of rules are defined (M = 4.74); Expected student behaviors are taught directly (M = 4.54); and Procedures are in place to address dangerous situations (M = 4.54). The school-wide behavioral support system with the lowest score was: Staff receives regularly (monthly/quarterly) feedback on behavioral patterns (M = 3.21) (Table 5).

Table 5: School-wide Behavioral Support Systems in Place

	N	Mean	Std. Deviation
A small number (e.g.3-5) of positively and clearly stated student expectations of rules are defined.	85	4.74	0.54
Expected student behaviors are taught directly.	85	4.54	0.73
Expected student behaviors are rewarded regularly.	85	4.44	0.79
Problem behaviors (failure to meet expected student behaviors) are defined clearly.	84	4.15	0.98
Consequences for problem behaviors are defined clearly.	83	4.01	1.11
Distinctions between office vs. classroom managed problem behaviors are clear.	83	3.99	1.01
Options exist to allow classroom instruction to continue when problem behaviors occur.	85	3.82	1.16
Procedures are in place to address emergency/dangerous situations.	84	4.54	0.86
A team exists for behavior support planning and problem solving.	80	4.34	1.07
School administrator is an active participant on the behavior support team.	80	4.43	1.08
Staff receives regularly (monthly/quarterly) feedback on behavior patterns.	69	3.26	1.66
School has formal strategies for informing families about expected behaviors at school.	83	4.22	1.02
Booster training activities for students are developed, modified, and conducted based on school data.	73	3.97	1.19
School-wide behavioral support team has a budget for (a) teaching students (b) on-going rewards (c) annual staff planning.	62	3.66	1.45
All staff is involved directly and/or directly in school-wide interventions,	81	4.21	1.09
Total	85	4.17	0.76

To what extent do school-wide systems of support vary by school?

Table 6 shows the mean school-wide behavioral support systems scores for each study school. As seen in Table 6, the extent to which teachers perceive PBS to be in place varied across the 7 study schools. We conducted analysis of variance to explore differences in the level of school-wide systems in place by study school. Table 7 shows that there was a statistically significant difference in the degree to which teachers reported school-wide systems in place across study schools.

Table 6: Mean Scores of School-wide Behavioral Support Systems in Place by School

School	N	Mean	Std. Deviation
Baldcreek	4	4.18	0.26
Balfour	10	3.98	0.59
Burgaw	17	4.42	0.60
Southwood	15	4.36	0.59
Supply	10	3.64	0.99
Wrightwboro	20	4.46	0.68
Oakgrove	9	3.54	0.95
Total	85	4.17	0.76

Table 7: One Way Analysis of Variance School-wide Behavioral Support Systems in Place by School

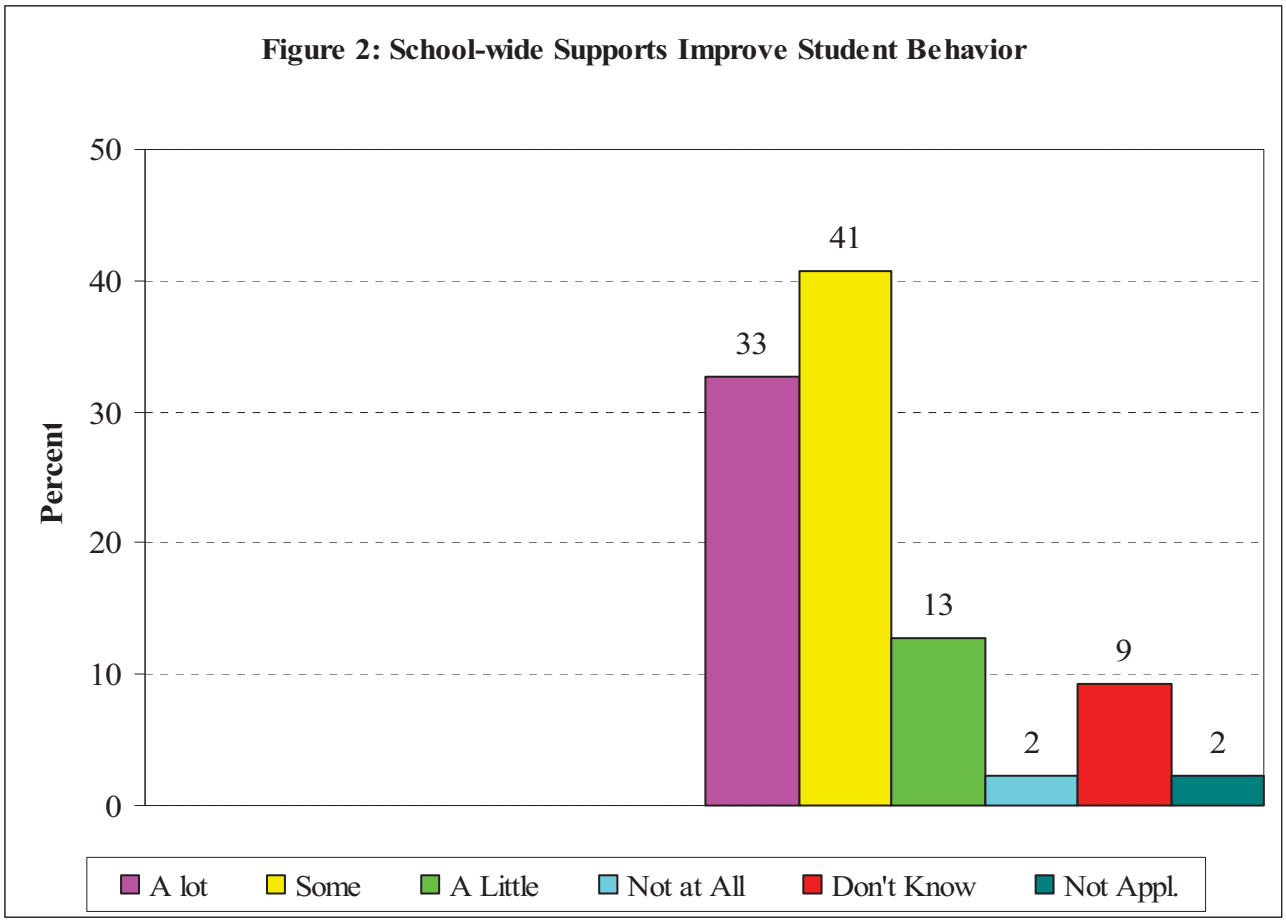
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.01	6	1.67	3.35	0.01
Within Groups	38.87	78	0.49		
Total		84			

To what extent has the use of School-wide Positive Behavioral Supports improved the behavior of students in *YOUR SCHOOL*?

Teachers next rated the degree to which school-wide behavioral supports improved student behavior using the following rating scale: 5 = A lot; 4 = Some; 3 = A little; 2 = Not at all; 9 = Not applicable because School-wide Positive Behavioral Supports are not in place; and 8 = Don't know.

Figure 2 shows that 33% of teachers indicated that the use of School-wide Positive Behavioral Supports has improved student behavior in their schools *a lot*; 41% reported that it has improved student behavior *some*. Fifteen percent of teachers reported that use of School-wide Positive Behavioral Supports has resulted in *little or no improvement* in student behavior. Of note is that 9% of teachers reported that they did not know if the use of School-wide Positive Behavioral Supports has improved student behavior or not; and 2% stated that School-wide Positive Behavioral Supports are *not in place* at their schools.

Figure 2: School-wide Supports Improve Student Behavior



N = 86

To what degree are the following classroom-wide systems of positive behavioral support in place in *YOUR CLASSROOM?*

Classroom settings were defined in the survey as instructional settings in which teachers supervise and teach groups of students (Sugai, et al. 2000). Teachers were asked to respond to the classroom-wide items using the following response categories: 5 = Completely in place; 4 = Mostly; 3 = Somewhat; 2 = Barely; and 1 = Not at all in place. The results in Table 8 are shown as means with stand deviations.

Teachers reported that classroom-wide systems of positive behavioral support are *mostly in place* in their classrooms (M = 4.55). Classroom-wide systems reported most in place were: Expected student behaviors and routines in classrooms are stated positively and defined clearly (M = 4.78); and Expected student behavior and routines in classrooms are taught directly (M = 4.73). The lowest scoring item in this index was: Classroom options exist to allow classrooms instruction to continue when problem behavior occurs (M = 4.29) (Table 8).

Table 8: Classroom-wide Systems of PBS in Place in Your Classroom

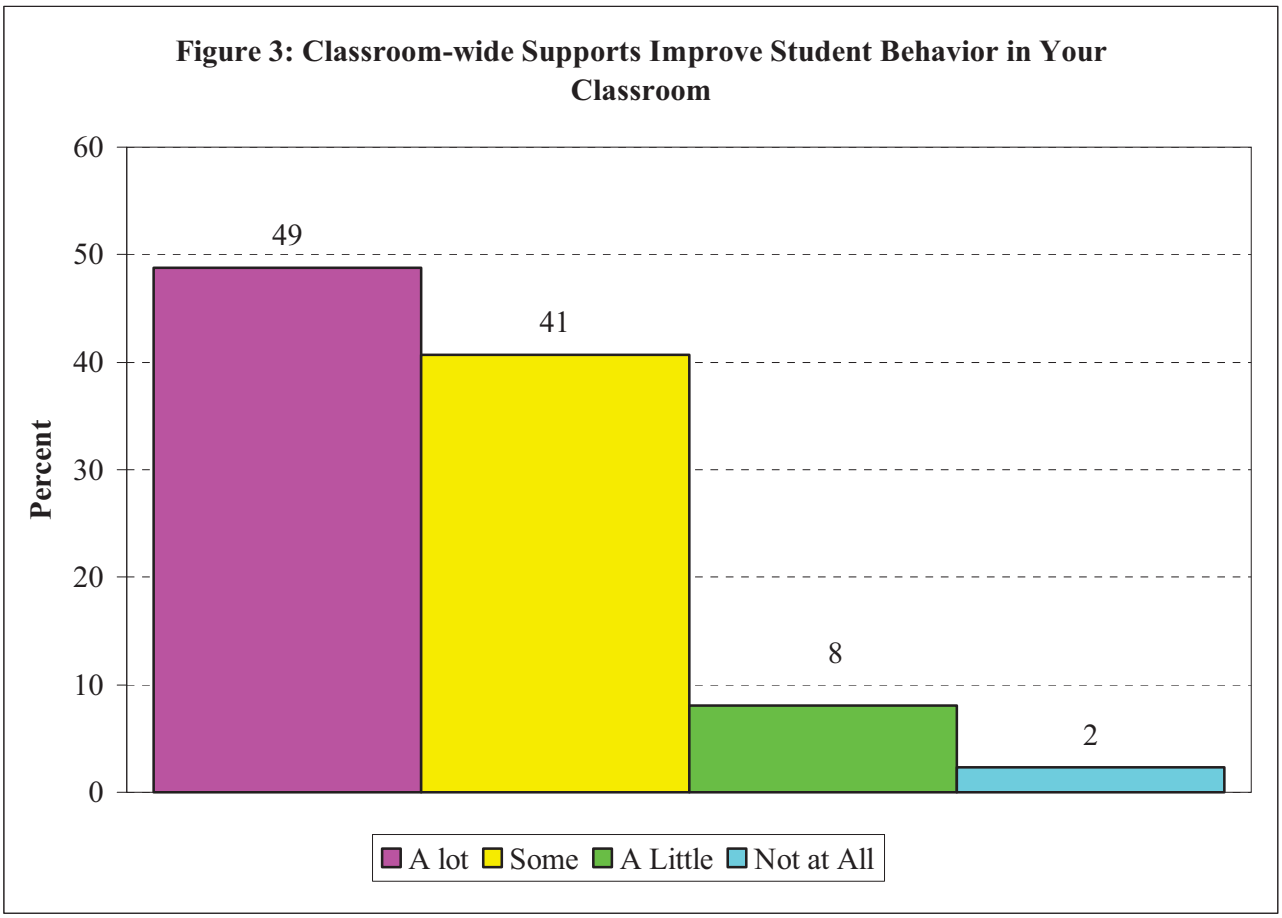
	N	Mean	Std. Deviation
Expected student behavior and routines in classrooms are stated positively and defined clearly.	86	4.78	0.58
Problem behaviors are defined clearly.	86	4.63	0.78
Expected student behavior and routines in classrooms are taught directly.	86	4.73	0.66
Expected student behaviors are acknowledged regularly (positively reinforced) (>4 positives to 1 negative).	86	4.52	0.79
Problem behaviors receive consistent consequences.	85	4.36	0.99
Procedures for expected and problem behaviors are consistent with school-wide procedures.	83	4.48	0.92
Classroom options exist to allow classroom instruction to continue when problem behavior occurs.	85	4.29	0.96
Instructional and curriculum materials are matched to student ability (math, reading, language).	86	4.62	0.62
Total	86	4.55	0.65

We conducted analysis of variance to explore differences in the level of classroom-wide systems teachers reported in place in their classrooms across study schools, and found no statistically significant differences.

To what extent has the use of classroom-wide positive behavioral supports improved the behavior of students in *YOUR CLASSROOM*?

When asked about the impact of positive behavioral supports on student behavior in their own classrooms, almost half (49%) reported that it has improved student behavior *a lot*; while 41% reported *some* improvement. Ten percent of teachers reported *little* to *no improvement* in student behavior.

Figure 3: Classroom-wide Supports Improve Student Behavior in Your Classroom



N = 86

To what degree are the following classroom-wide systems of positive behavioral support in place in *OTHER TEACHERS' CLASSROOMS?*

We used the same classroom-wide systems items to ask teachers to assess the degree to which classroom-wide systems of positive behavioral support are in place in other teachers' classrooms. Teachers were asked to respond to the classroom-wide items using the following response categories: 5 = Completely in place; 4 = Mostly in place; 3 = Somewhat in place; 2 = Barely in place; and 1 = Not at all in place.

Teachers responded that classroom-wide supports are *mostly in place* in other teachers' classrooms as well (M = 4.28). However, teachers reported lower levels of classroom-wide systems of support in other teachers' classrooms compared to their own classrooms (Table 9). These differences were statistically significant $p<.05$ (Table 10).

Table 9: Classroom-wide Systems of PBS in Place in Other Teachers' Classrooms

	N	Mean	Std. Deviation
Expected student behavior and routines in classrooms are stated positively and defined clearly.	73	4.44	0.71
Problem behaviors are defined clearly.	72	4.36	0.88
Expected student behavior and routines in classrooms are taught directly.	71	4.46	0.69
Expected student behaviors are acknowledged regularly (positively reinforced) (>4 positives to 1 negative).	70	4.21	0.83
Problem behaviors receive consistent consequences.	70	3.99	0.92
Procedures for expected and problem behaviors are consistent with school-wide procedures.	69	4.12	1.04
Classroom options exist to allow classroom instruction to continue when problem behavior occurs.	68	4.15	0.98
Instructional and curriculum materials are matched to student ability (math, reading, language).	72	4.47	0.71
Total	75	4.28	0.70

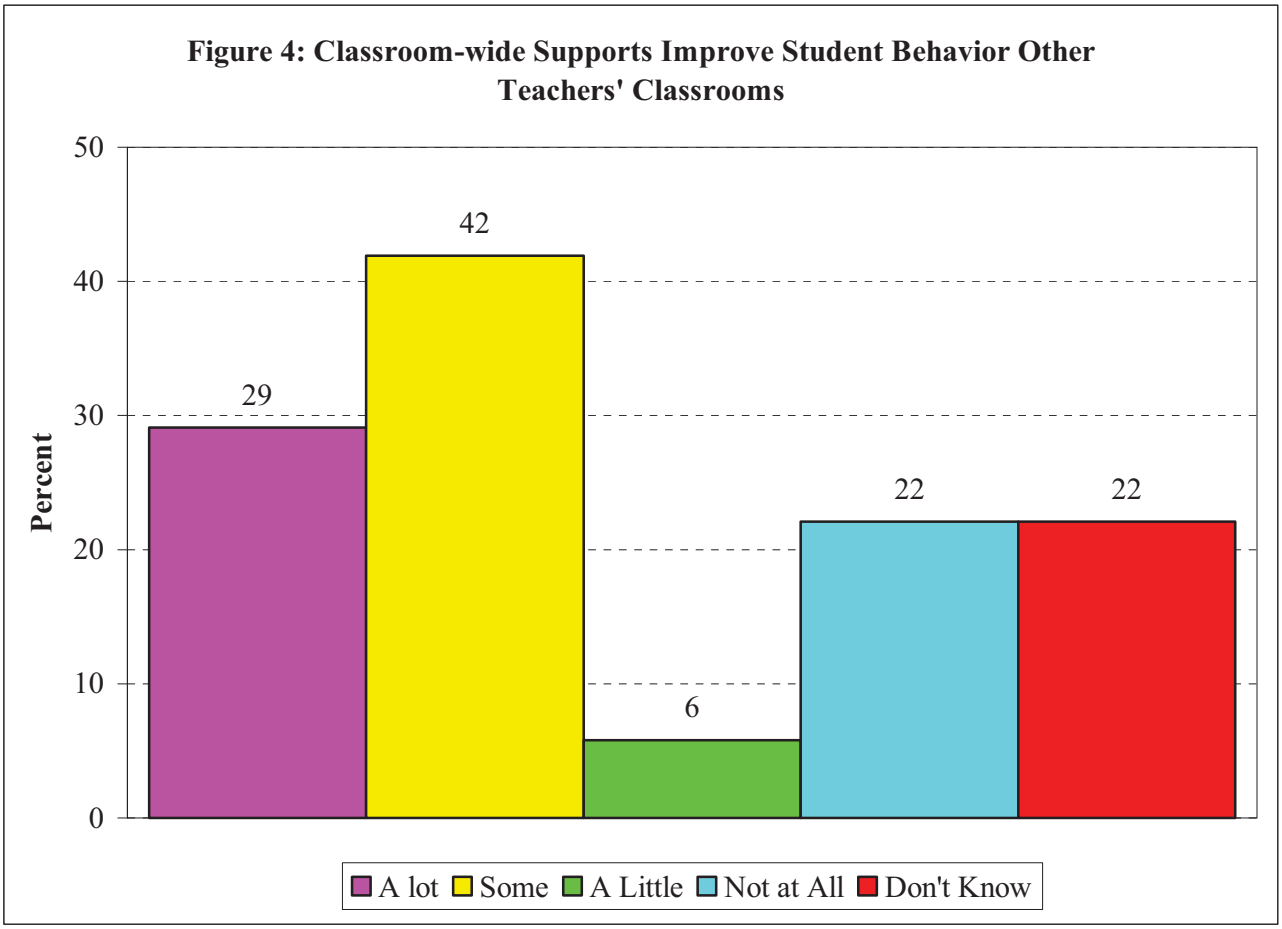
Table 10: T Test Results Extent of Classroom-wide Systems in Place Your Classroom Versus Other Teachers' Classrooms

	T Value	df	P Value
Expected student behavior and routines in classrooms are stated positively and defined clearly.	3.86	72	<0.00
Problem behaviors are defined clearly.	3.33	71	0.001
Expected student behavior and routines in classrooms are taught directly.	3.27	70	0.002
Expected student behaviors are acknowledged regularly (positively reinforced) (>4 positives to 1 negative).	3.25	69	0.002
Problem behaviors receive consistent consequences.	3.78	69	<0.00
Procedures for expected and problem behaviors are consistent with school-wide procedures.	3.66	67	0.001
Classroom options exist to allow classroom instruction to continue when problem behavior occurs.	2.52	67	0.014
Instructional and curriculum materials are matched to student ability (math, reading, language).	2.63	71	0.011
Total	4.41	74.00	<0.00

We also conducted analysis of variance to explore differences in the level of classroom-wide systems teachers reported in place in other teachers' classrooms across study schools, and found no statistically significant differences.

To what extent has the use of classroom-wide positive behavioral supports improved the behavior of students in *OTHER TEACHERS CLASSROOMS*?

Figure 4 shows that fewer teachers (29%) reported *a lot of improvement* in student behavior in other teachers' classrooms compared to their own classrooms (42%) (Figure 3 above). However, 42% of teachers reported *some improvements* in other teachers' classrooms. Twenty two percent reported *no improvements* at all in student behavior in other teacher's classrooms; while another 22% stated that they *did not know* (Figure 4).



N = 86

To what degree are the following *TARGETED INTERVENTIONS* to support students in place in your school?

Targeted supports were defined in the survey as specific supports for students who engage in chronic problem behaviors (approximately 1% - 7% of enrolled students) (Sugai et al. 2000). Teachers were asked to respond to the targeted intervention items using the following response categories 5 = Completely in place; 4 = Mostly; 3 = Somewhat; 2 = Barely; and 1 = Not in place.

Teachers reported that targeted interventions to support students who engage in problem behaviors are only *somewhat in place* in their schools (M = 3.68). The targeted intervention to support students reported as most in place was: [The] behavioral support team includes individuals skilled at conducting functional behavioral assessment (M = 4.03). The targeted intervention reported as least in place in schools was: School includes formal opportunities for families to receive training on behavioral support/positive parenting strategies (M=3.00) (Table 11).

Table 11: Targeted Interventions in Place in Your School

	N	Mean	Std. Deviation
Assessments are conducted regularly to identify students with chronic problem behaviors.	68	3.44	1.31
A simple process exists for teachers to request assistance.	80	3.65	1.33
A behavior system responds promptly to students who present chronic behavior problems at school.	80	3.65	1.33
Behavioral support team includes individuals skilled at conducting functional behavioral assessment.	72	4.03	1.20
Local resources are used to conduct functional assessment-based behavioral support planning.	56	3.71	1.12
School includes formal opportunities for families to receive training on behavioral support/positive parenting strategies.	68	3.00	1.46
Significant family and/or community members are involved when appropriate.	79	3.78	1.15
Total	84	3.68	1.11

To what extent do targeted interventions to support students vary by school?

Table 12 shows the mean targeted interventions to support students score for each study school. We conducted analysis of variance to explore differences in the level of targeted systems of support in place by study school. Tables 13 shows that there were statistically significant differences in the degree to which teachers reported targeted support systems in place across study schools.

Table 12: Mean Scores Targeted Interventions by School

School	N	Mean	Std. Deviation
Baldcreek	3	3.76	1.01
Balfour	9	3.34	0.98
Burgaw	17	4.15	0.77
Southwood	15	3.91	1.15
Supply	10	2.96	1.34
Wrightwboro	20	3.96	1.06
Oakgrove	10	2.98	1.08
Total	84	3.68	1.11

Table 13: One Way Analysis of Variance Targeted Interventions by School

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.39	6	2.89	2.60	0.02
Within Groups	85.62	77	1.11		
Total		83			

Please indicate the degree to which you agree or disagree with the following statements about school climate at your school:

We modified a Classroom Climate Scale developed by Vessels (2005) in order to assess teachers' perceptions of school climate. Teachers were asked to respond to 12 of the original 18 items on the scale. Each question was answered on a 5 point scale: 5 = Strongly agree; 4 = Agree somewhat; 3 = Neither Agree nor Disagree; 2 = Disagree somewhat; and 1 = Disagree completely. The results below are shown as means with standard deviations.

Teachers at all schools *agreed somewhat* that school climate is positive at their schools (M=4.26). School climate questions about teachers had higher mean scores than school climate questions about students. Teachers scored themselves highest on taking the time to praise students more often than to criticize them (M = 4.60). They rated themselves the lowest on treating students with respect (M = 4.36). Teachers rated students highest on their perception that students enjoy being in school (M = 4.34). They rated students lowest on students respectfully listening to one another during class discussions (M = 3.79) (Table 14).

Table 14: School Climate Scale

	N	Mean	Std. Deviation
Students are kind and supportive of one another.	86	4.02	0.88
Students from different social classes and races get along well with one another.	86	4.16	0.88
Students stop other students who are unfair or disruptive.	84	3.82	0.93
Students get along well together most of the time.	86	4.21	0.80
Students respectfully listen to each other during class discussions.	86	3.79	0.95
Students make friends easily.	86	4.17	0.83
Students enjoy being at school .	86	4.34	0.66
Teachers treat students with respect.	85	4.36	0.67
Teachers praise students more often than they criticize them.	86	4.60	0.62
Teachers treat students fairly.	86	4.51	0.70
Teachers take time to help students work out their differences.	86	4.59	0.60
Students report it when one student makes fun of another.	85	4.54	0.55
Total	86	4.26	0.54

To what extent does teacher perception of school climate vary by study school?

Table 15 shows the mean school climate score for each study school. We conducted analysis of variance to explore differences in teachers' perceptions of school climate across study schools. Table 16 shows that there were statistically significant differences in teachers' perceptions of school climate across study schools.

Table 15: Mean School Climate Score by School

School	N	Mean	Std. Deviation
Baldcreek	4	4.79	0.16
Balfour	10	4.04	0.38
Burgaw	17	4.32	0.43
Southwood	15	4.26	0.45
Supply	10	3.99	0.77
Wrightwboro	20	4.53	0.48
Oakgrove	10	3.90	0.52
Total	86	4.26	0.54

Table 16: One Way Analysis of Variance of School Climate and Schools

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.09	6	0.85	3.48	0.00
Within Groups	19.28	79	0.24		
Total	24.37	85			

To what degree do systems of positive behavioral support affect teacher perception of school climate?

We used regression analysis to explore the extent to which each behavioral support system: school wide; classroom-wide/own classroom; classroom-wide/ other teachers' classrooms; and targeted interventions to support students predicted school climate scores. The equation containing these four variables accounted for 69% of the variance in school climate, $F(4, 68) = 15.23$, $P<.001$, adjusted $R2 = .44$. Table 17 shows that the level of school-wide systems of support in place was positively and significantly related to school-climate scores. No other support systems were significant predictors of school climate.

Table 17: Multiple Regression Analysis of Predictors of School Climate

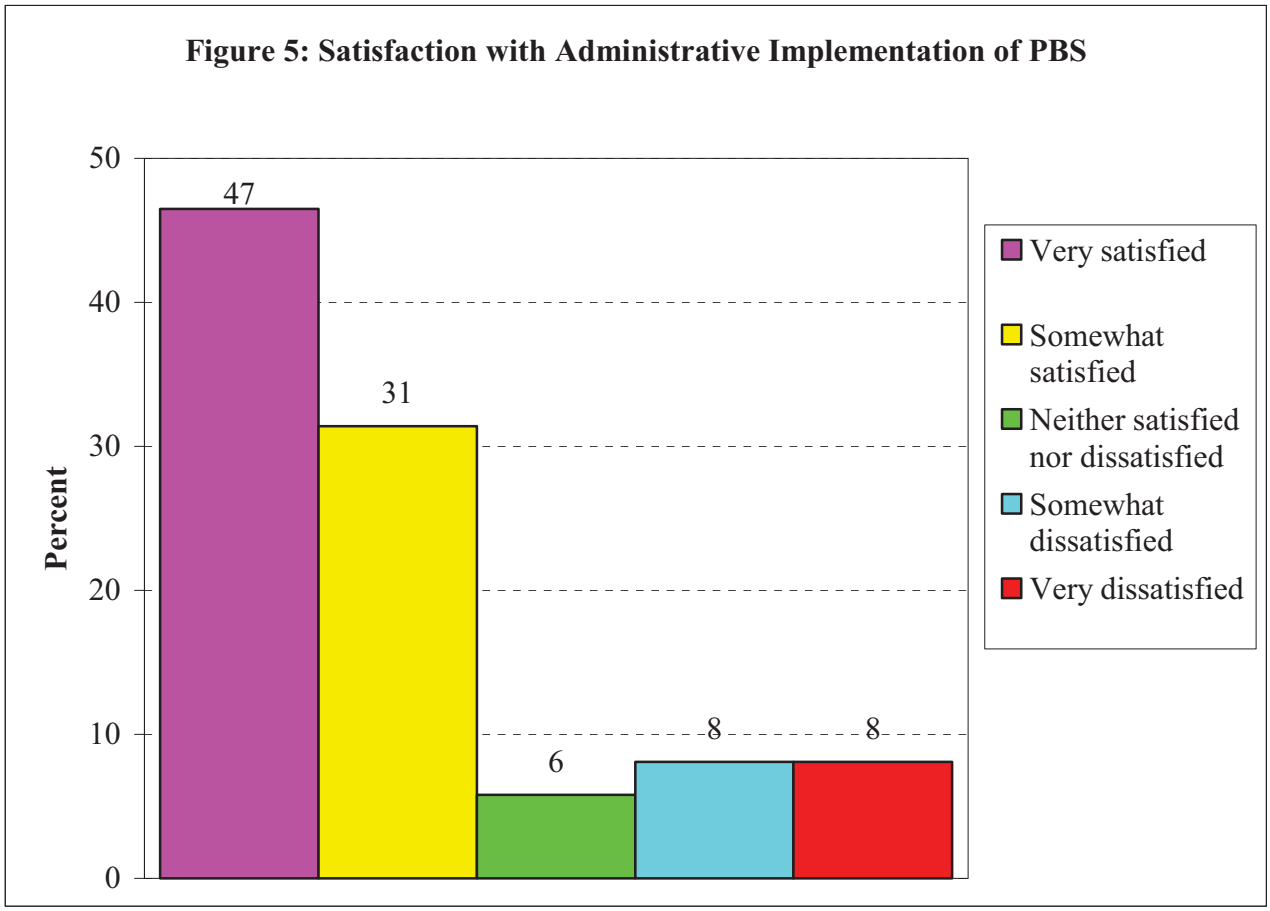
Predictor	Beta	t	Sig.
1. School-wide behavioral support systems in place.	0.64	4.31	0.00
2. Classroom-wide behavioral support systems in place/ your classroom.	0.07	0.57	0.57
3. Classroom-wide behavioral support systems in place/other teachers' classrooms.	0.04	0.32	0.75
4. Targeted interventions to support students in place.	-0.02	-0.12	0.90

For t Test, df = 74

How satisfied are you with the way that administrators at your school have implemented School-wide PBS?

Figure 5 shows that almost half of teachers (47%) indicated that they are *very satisfied* with the way administrators are implementing School-wide PBS; a little under a third (31%) indicated that they are *somewhat satisfied* while 16% indicated that they are *somewhat to very dissatisfied* with the way administrators have implemented School-wide PBS.

Figure 5: Satisfaction with Administrative Implementation of PBS

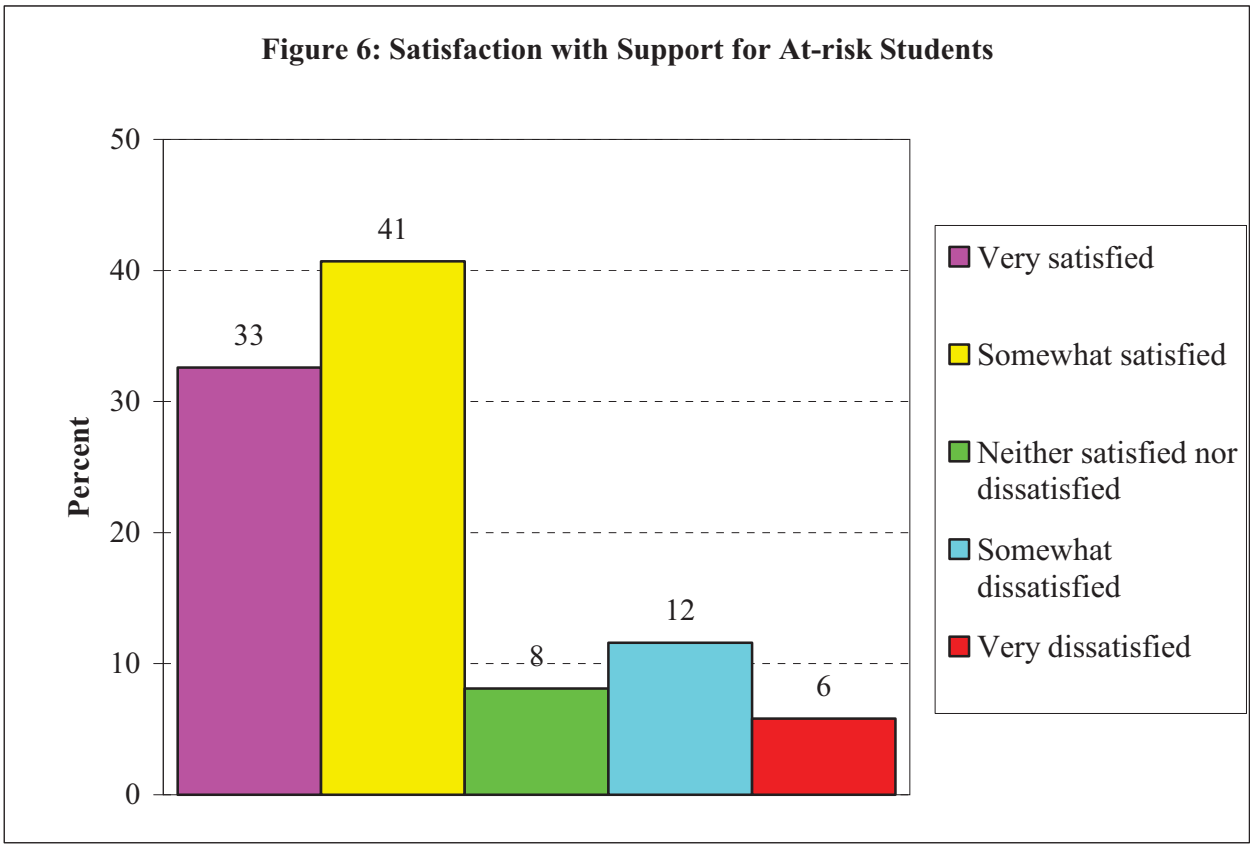


N = 86

How satisfied are you with the level of cooperation and support from staff designated to provide assistance to at-risk students (i.e. counselors, resource teachers, etc.) in your school?

Teachers reported less satisfaction with the level of cooperation and support for at-risk students from staff designated to provide assistance to at-risk students. Only a third of teachers reported high levels of satisfaction with support from staff; a little over 40% reported that they were *somewhat satisfied* while 15% reported that they were *somewhat to very dissatisfied* with the level of cooperation and support from staff designated to provide assistance to at-risk students (Figure 6).

Figure 6: Satisfaction with Support for At-risk Students

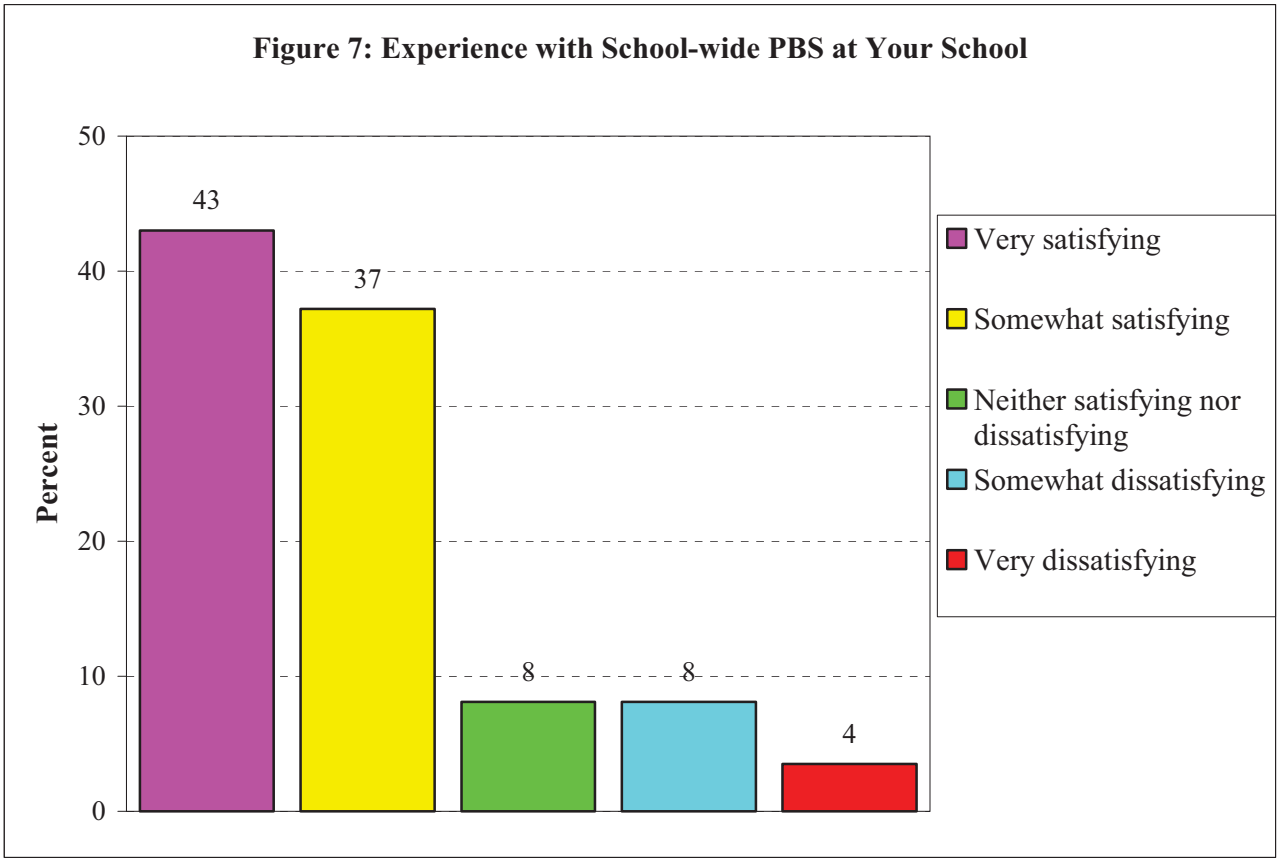


N = 86

In general how would you best characterize your experience with School-wide PBS at your school?

Forty-three percent of teachers rated their overall experience with School-wide PBS as *very satisfying*; while over a third (37%) characterized it as *somewhat satisfying.* Few teachers (12%) reported that their experience has been *somewhat dissatisfying or very dissatisfying* (Figure 7).

Figure 7: Experience with School-wide PBS at Your School



N = 86

What other comments would you like to make about School-wide PBS in your school?

We asked teachers to provide additional open-ended comments to us in order to shed light on some of their evaluation responses. There were a wide range of responses. These are arranged into categories below.

Favorable

PBS has changed the face of our school. Children and staff are more caring and spend more time complimenting successes than pointing out misbehaviors. With a plan in place everyone knows the expectations and can carry through with whatever action may need to occur.

The Positive Behavioral Support program has been a positive experience. The students at our school understand the expectations and procedures that are consistent throughout the school and for the most part, strive to meet them.

I feel that the students are treated equally and that is really does promote Positive behavior and I have seen first hand that it works!

Teachers are on board to lower office referrals. Students enjoy seeing their Personal Best posted on the wall. Teachers are taking steps to minimize negative behaviors. Teachers rode the bus the first two weeks of school and lowered office referrals within the first two weeks of school. This was our area of greatest weakness last year.

Favorable with Limitations

PBS when used correctly works extremely well. The children in my classroom benefit from it greatly. I teach Kindergarten and in the past 5 years of implementing PBS in my class I have only written 2 students up. My children are taught expectations and are rewarded when they show they understand them. We have tried to get PBS started, but usually lack of administrative support makes it not work. I think if our whole school would use it, it would be a much better place.

I don't think we use it to the fullest extent. With teachers coming in and out it's hard to know who knows what it's about and who doesn't.

Unfavorable

The only thing is that students have started to expect rewards. Example, they will say, I held the door for you, and do I get a treat?

I *am not a big fan of behavioral reward systems. Just like I disagree with paying children for making good grades or giving them intrinsic rewards for reading books, I disagree with rewarding normal, EXPECTED good behavior. I believe that doing this leads to the behaviors only being exhibited when the intrinsic rewards are available and forthcoming. This does not breed good citizenship. Children need to learn to do what is right BECAUSE IT IS RIGHT. We need to return to a society in which individuals feel pride in accomplishment. Children need to learn to KNOW when they should be proud of themselves without requiring or expecting any reward other than this knowledge. I do believe in recognizing and rewarding outstanding behaviors. This encourages going the extra mile, and that is good citizenship.*

Outcomes from the NC Education Research Data Center

Data

The data used in this report come from the North Carolina Education Research Data Center. These data are provided directly from the North Carolina Department of Public Instruction. With funding from the Spencer Foundation, the North Carolina Education Research Data Center was established in 2000-2001 as a unique portal to an immense store of data from the North Carolina Department of Public Instruction (DPI). Located in the Center for Child and Family Policy at Duke University, the Data Center provides researchers and the broader policy community with ready access to the data that they need for policy-oriented education research. These data include information on all students in public schools in grades 3 through 12. The information includes attendance, end-of-grade math and reading test scores, disciplinary violations, suspensions and expulsions. In addition, through the use of longitudinal data for students in grades 3 through 12, it is possible to determine whether students were promoted to the next grade or retained.

Sample

The sample for this analysis was subsetted to "regular" elementary schools (thus charter schools, special education schools and magnet schools were excluded from this study) that had been in existence for at least ten years.

Two sub samples were included in the study: The first sub sample was comprised of eight elementary school implementing school-wide PBS using national criteria: Green Valley Elementary, Oak Grove Elementary, Supply Elementary, Bald Creek Elementary, Burgaw Elementary, Southwood Elementary, Balfour Elementary, and Wrightsboro. The second sub sample included all elementary schools that had ever begun to use School-wide PBS (N =264).

Measures

Table 18 describes the outcomes used in this study. A total of seven school-level outcome variables were used: reading score, math score, short term suspension, third and fifth grade promotion, composite performance and one year teacher turnover rate.

Table 18: Outcome Measures

Outcome Measure	Years Available	Description of the Variable
Reading Score	2001-2006	Percent of students performing at or above grade level in reading
Math Score	2001-2006	Percent of students performing at or above grade level in math
Short Term Suspension	2003, 2004-2006	Number of Short Term Suspensions (10 Days or Less) per 100 Students
Third Grade Promotion	2003-2006	Percent of Third Grade Students Promoted to Fourth Grade
Fifth Grade Promotion	2003-2006	Percent of Fifth Grade Students Promoted to Sixth Grade
Composite Performance	1997-2006	The percent of students performing at grade level or higher on the End of Grade and End of Course Tests.
Teacher Turnover Rate	2002-2006	Percent of teachers employed in a school last year who are no longer employed in the same school this year

Analysis

Step 1: Standardizing the Dependent Variables

The first step in this analysis was to standardize each of the dependent variables. For each dependent variable, standardization was accomplished by subtracting the mean of all regular education elementary schools and dividing by the stand deviation of the variable. Standardization was necessary because from year to year the Department of Public Instruction may alter the way information is collected or scaled. By standardizing the variables, changes in the relative level of the outcome can be compared across and within schools over time.

Step 2: Measuring Time

Time was categorized as follows: 1) prior to PBS; 2) first year of PBS; and 3) subsequent years with PBS.

Step 3: Measuring Change over Time in the Outcomes

We used fixed effects analysis to examine change over time in each outcome in Table 18. Fixed effect analysis compares change in an outcome within each school. Thus each school served as its own control. Variables that do not change over time for a school (e.g. rural-urban status) were already controlled for by this model. In these models we also controlled for some time varying covariates such as the percentage of students that are white black, or Hispanic.

Results

Table 19 shows the results of the fixed effects regression analysis for each outcome variable using the eight elementary schools. A positive coefficient implies that the outcome was higher in the time period specified than in the time prior to adoption of School-wide PBS; whereas a negative coefficient implies that the outcome was lower in the time period specified than in the time prior to School-wide PBS. The p-value provides information regarding whether the test is considered to be "statistically significant."[1] PBS start year refers to the first year that the school adopted PBS. Post PBS refers to all years following the adoption of PBS.

These results show that there were no statistically significant changes in outcomes as a result of implementing School-wide PBS in the eight study schools. However, power for this study (the ability to detect an effect) is limited due to both the small number of schools in the sample as well as the lack of a large number of time points preceding and following the adoption of School-wide PBS.

Table 19: The Effects of School-wide PBS on School Level Outcomes N = 8

		8 Schools		
Outcome	**Time Relative to Initiation of PBS***	**Beta**	**Standard Error**	**P-value**
Reading	PBS Start Year	0.04	0.13	0.75
	Post PBS	-0.04	0.12	0.72
Math	PBS Start Year	-0.05	0.17	0.79
	Post PBS	-0.21	0.15	0.17
Composite Performance	PBS Start Year	0.12	0.14	0.37
	Post PBS	-0.15	0.1	0.15
3rd Grade Promotion	PBS Start Year*	0.06	0.92	0.95
	Post PBS			
5th Grade Promotion	PBS Start Year*	-0.13	0.38	0.73
		Not/Applicable		
Short Term Suspension	PBS Start Year	Not/Applicable		
	Post PBS	0.85	0.65	0.21
Teacher Turnover Rate	PBS Start Year	-0.55	0.74	0.46
	Post PBS	0.03	0.7	0.97
*The omitted category is time prior to the start of PBS				
Note: Models also control for change in student population who are white, black or Hispanic				
Source: North Carolina Education Research Data Center				

[1] P=.05 implies that if there were 100 similarly constructed samples, we would determine that the effect was different from zero in 95 of the samples.

The next table shows the results of the fixed effects regression analysis for each outcome variable using the sample with 264 elementary schools that ever adopted School-wide PBS.

These results show that there was a trend towards an increase in composite performance (p = .09), and a significant increase in fifth grade promotion rate (p= .009) during the first year that School-wide PBS was adopted. However, there is no evidence that having School-wide PBS for more than one year improves any of these outcomes. The results also show a significant increase in short term suspensions during the first year that School-wide PBS was adopted (p = .013). There is no evidence that this finding was sustained if School-wide PBS was implemented for more than one year.

Table 20: The Effects of School-wide PBS on School Level Outcomes N = 264

		All Elementary Schools with PBS (N = 264)		
Outcome	Time Relative to Initiation of PBS*	Beta	Standard Error	P-value
Reading	PBS Start Year	0.04	0.04	0.322
	Post PBS	0.06	0.04	0.146
Math	PBS Start Year	0.06	0.04	0.19
	Post PBS	-0.01	0.05	0.9
Composite Performance	PBS Start Year	**0.06**	**0.04**	**0.09**
	Post PBS	0.04	0.04	0.39
3rd Grade Promotion	PBS Start Year*	0.08	0.08	0.34
	Post PBS	0.11	0.11	0.33
5th Grade Promotion	PBS Start Year*	**0.24**	**0.09**	**0.009**
		0.03	0.12	0.789
Short Term Suspension	PBS Start Year	**0.18**	**0.07**	**0.013**
	Post PBS	0.04	0.09	0.639
Teacher Turnover Rate	PBS Start Year	0	0.06	0.94
	Post PBS	-0.07	0.08	0.42

*The omitted category is time prior to the start of PBS
Note: Models also control for change in student population who are white, black or Hispanic
Source: North Carolina Education Research Data Center

Summary of Results

This report first examined teachers' responses to a web-based survey to assess teacher perception of the impact of School-wide PBS in their schools. Results are based on the responses of 86 (49%) of teachers from seven schools implementing School-wide PBS according to national criteria.

Key findings from survey respondents are:

1. In spite of the fact that all schools were selected for the study because they were implementing School-wide PBS according to national criteria, only 92% of teachers reported that it is *currently in place*. One possible explanation for this is that the program has lapsed at some schools due to changes in administration, or that newer teachers are not as aware of the program. As one teacher commented: "With teachers coming in and out it's hard to know who knows what it's about and who doesn't." This suggests that schools may need to make a special effort to orient new teachers to School-wide PBS to insure continuity of the program.

2. Teachers in all study schools reported school-wide behavioral supports to be *mostly in place*, although there were statistically significant differences across study schools. Almost three quarters (74%) of teachers reported that school-wide behavioral supports improved student behavior *somewhat to a lot*.

3. The two school-wide behavioral support systems that teachers reported as least likely to be in place were the monthly/quarterly feedback on student behavior patterns, and a budget for teaching, rewards, and on-going planning.

4. Teachers also reported that classroom-wide behavior supports are *mostly in place* in their schools. In addition, almost all (90%) of teachers reported that classroom-wide behavioral supports improved student behavior *somewhat to a lot*. The two classroom-wide systems reported as least likely to be in place by teachers were: 1) classroom options to allow classroom instruction to continue when problem behavior occurs; and 2) problem behaviors receive consistent consequences.

5. Teachers reported that targeted interventions to support students who engage in problem behaviors are only *somewhat in place* in their schools. The targeted intervention least likely to be in place according to teachers was providing formal opportunities for families to receive training on behavioral support/positive parenting strategies.

6. Teachers also reported less satisfaction with staff designated to provide support for at-risk students compared to satisfaction with administrative support for implementing School-wide PBS.

4. One of the most salient findings from the survey was that the level of school-wide behavioral support systems in place positively predicted school climate. In contrast, neither classroom-wide systems of behavioral support, nor targeted interventions to support students were statistically significant predictors of school climate.

5. Overall, teachers reported that their experience with School-wide PBS has been *very satisfying*. However, these findings must be interpreted with some caution due to the possibility of self-selection; teachers may have self-selected into the survey because they have had a more favorable experience with School-wide PBS, thus resulting in a more positive evaluation of School-wide PBS.

Key findings from the administrative data are:

1. There were no statistically significant effects of School-wide PBS on school outcomes in the eight schools implementing School-wide PBS according to national criteria possibly due to small sample size and the limited power to detect effects.

2. In the first year that School-wide PBS was adopted there was a trend towards significant increases in composite performance, and an increase in fifth grade promotion in all schools currently using School-wide PBS. There was also a significant increase in short term suspension in all schools currently using School-wide PBS.

3. There were no statistically significant differences from baseline (PBS start year) to having School-wide PBS for more than one year (PBS post year) on study outcomes.

Discussion and Conclusions

The results of this evaluation show that School-wide PBS is partially in place in study schools. School-wide and class-room wide behavioral support systems are more in place than targeted interventions to support students. The results also show that when school-wide behavioral supports are in place there is a positive impact on school climate in study schools, and that teachers collectively and positively value School-wide PBS. It appears that they place the highest value on the support provided by administrators implementing the program.

There are several critical elements of School-wide PBS that do not appear to be fully in place. These include: 1) a system to ensure that all new teachers are thoroughly oriented to School-wide PBS; 2) a system for providing routine feedback to teachers on student behaviors; 3) a budget for planning and rewards; 4) a system for allowing teaching to continue when a student's problem behavior interrupts class; and 5) a formal system to reach out to the community in order to teach parents positive behavioral support and positive parenting strategies. Addressing each of these elements will take considerable time, planning and resources at the school-wide systems level, and may require additional support from NCDPI.

We were unable to find statistically significant improvements in academic and teacher outcomes in the eight study schools that have implemented School-wide PBS using national criteria. However, given the small number of schools included in these analyses the power to detect changes was not adequate. When examined across all schools that had ever implemented School-wide PBS (n=264), however, there were statistically significant improvements in two academic indicators during the first year that School-wide PBS was implemented. This finding is encouraging, and leads to the conclusion that School-wide PBS is effective in the early stages of implementation but that the quality of implementation may decline over time. There was also a significant increase in in-school suspensions during the first year of implementation of School-wide PBS across all schools, but not subsequently. This finding may be attributed to the more comprehensive, systematic and consistent application of disciplinary procedures with students during the first year of the program's implementation, a key feature of School-wide PBS. In-school suspensions may have decreased in the years following School-wide PBS as students became more familiar with the new norms for acceptable behavior, and rewards for positive behaviors.

We believe that taking steps to fully implement and sustain each of the behavioral support systems of School-wide PBS may result in further increases in positive school climate in NC elementary schools, and may increase the likelihood that School-wide PBS will have an impact on academic achievement. We conclude that further study of the level of implementation of School-wide PBS and its impact on academic achievement is warranted.

Recommendations

Based on the findings from this report we recommend that NCDPI expand its efforts to fully implement and sustain School-wide PBS in North Carolina's elementary schools. Systematically strengthening all elements in each of the four support systems will increase the likelihood that School-wide PBS will have a measurable impact on academic outcomes in the future.

Specifically, we recommend the following steps be taken to improve each of these systems:

School-wide Behavioral Support System

- Orient new staff (administrators, teachers, support and clerical) to School-wide PBS systems in place. If new staff is not adequately oriented, the quality of implementation is likely to decline over time.

- Identify resources to fund specific aspects of PBS that are under-funded (teaching, rewards and on-going planning).

- Identify and address barriers to in-school monitoring of and feedback on student behaviors patterns.

Classroom wide Support System

- Better coordinate and improve systems that permit classroom teaching to continue when problem behaviors occur.

Targeted Interventions to Support Students

- Offer formal programs for parents that teach positive parenting strategies and positive behavioral support.

Future Studies to Measure the Impact of School-wide PBS

- Increase efforts to regularly monitor and provide feedback to school staff on the level of implementation of School-wide PBS. This might be accomplished through annual implementation of the EBS (Effective Behavioral Support Self Assessment Survey) at the end of each academic year, followed by presentation of results at the start of the new school year in order to address barriers to full implementation.

- Increase efforts to regularly monitor and provide feedback to staff on the impact of School-wide PBS on outcomes of interest e.g., academic performance, school climate and teacher turnover. This might be accomplished by merging school level implementation data with school level academic and teacher data collected by the NC Education Research Data Center.

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Appendix

Scales and Measures

School Climate Scale: Multi site Violence Prevention Project
4 = Strongly Agree; 3 = Agree Somewhat; 2 = Disagree Somewhat; 1 = Strongly Disagree

Student-Student Relationships
*1. Students are kind and supportive of one another.
*2. Students from different social classes and races get along well.
*3. Students stop other students who are unfair or disruptive.
*4. Students get along well together most of the time.
*5. Students respectfully listen to each other during class discussions.
*6. Students make friends easily.
*7. Students enjoy being at school.
Student-Teacher Relationships
*8. Teachers treat students with respect.
*9. Teachers praise students more often than they criticize them.
*10. Teachers treat students fairly.
*11. Teachers take the time to help students work out their differences.
Awareness/Reporting
12. Students feel free to ask for help from teachers if there is a problem with a student.
13. Teachers know when students are being picked on or being bullied.
*14. Students are encouraged to report bullying and aggression.
15. Students know who to go to for help if they have been treated badly by another student.
16. Students report it when one student hits another.
17. Teachers take action to solve the problem when students report bullying.
18. Students report it when one student teases or makes fun of another.

Items 1, 2, 5, 6, 7 and 9 were adapted from Vessels, 1998.
* Items used in present school climate scale

Scoring and Analysis
Point values are assigned as indicated above. Point values are summed and then divided by the total number of items for each subscale. Intended range for each subscale is 1-4.
Student-Student Relationships: A higher score indicates a more positive relationship among students.
Student-Teacher Relationships: A higher score indicates a more positive relationship between students and teachers.
Awareness/Reporting: A higher score indicates a stronger awareness of the need for reporting violent incidents.

Alpha Coefficients Multi-site Violence Prevention School Climate Scale

Teacher sub-scale	Alpha Coefficient
Student - Student	.64
Student – Teacher	.74
Awareness and reporting	.75

Effective Behavior Support Survey (EBS Version 2.0) can be found at:
www.cenmi.org/uploaded%5C2004%5CJUL%5C1171793222_**ebssurvey**.pdf

Alpha Coefficients of Scales and Measures in Present Study

N = 86	Alpha	N of Items
School-wide Systems	0.95	15
Classroom-wide Systems Your Class	0.94	8
Classroom-wide systesm Other Teachers' Cl	0.93	8
Targeted Interventions In Place	0.94	7
School Climate	0.89	12

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