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Whole-School Positive Behaviour Support: Effects on student discipline problems and academic performance

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Many students attending public schools exhibit discipline problems such as disruptive classroom behaviour, vandalism, bullying, and violence. Establishing effective discipline practices is critical to ensure academic success and to provide a safe learning environment. In this article, we describe the effects of whole-school positive behaviour support on discipline problems and academic outcomes of students enrolled in an urban elementary school. The whole-school model was designed through technical assistance consultation with teachers that emphasized: (1) improving instructional methods; (2) formulating behavioural expectations; (3) increasing classroom activity engagement; (4) reinforcing positive performance; and (5) monitoring efficacy through data-based evaluation. As compared to a pre-intervention phase, the whole-school intervention was associated with decreased discipline problems (office referrals and school suspensions) over the course of several academic years. Student academic performance, as measured by standardized tests of reading and mathematics skills, improved contemporaneously with intervention. Issues related to whole-school approaches to student discipline and the contributions of positive behaviour support are discussed.

Antisocial behaviour, academic underachievement, and poor development of prosocial skills among students attending our nation's public schools remain a concern for educators, parents, and the lay public (Durlak, 1995; National Center for Education Statistics, 2002; Rose & Gallup, 1998; Stage & Quiroz, 1997). Problems such as violence, vandalism, bullying, and similar behaviours create an unsafe learning environment, undermine instruction, and pose a threat to the school population. Furthermore, early onset of discipline problems in school children predicts later maladjustment (Hawkins, Catalano, & Miller, 1992). Thus, children who engage in

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antisocial behaviours at a young age are more likely than their nonaggressive peers to respond similarly when older and as adults (Huesmann, Eron, Lefkowitz, & Walder, 1984; Loeber & Hay, 1997; Moffit, Caspi, Dickson, Silva, & Stanton, 1996; Olweus, 1979). Accordingly, longitudinal research points to large-scale primary and secondary prevention models as the logical intervention foci to influence positive school climate and youth behaviour (Dishion, Patterson, Stodmiller, & Skinner, 1991; Dryfoos, 1990; Kellam, Mayer, Rebok, & Hawkins, 1998; O'Donnell, Hawkins, Catalano, Abbot, & Day, 1995; Sugar, Horner et al., 2000).

The concern about student discipline has produced many intervention and prevention-focused programs to improve character and moral development, promote exemplary social skills, reduce antisocial behaviours, and strengthen academic competencies (Leff, Power, Manz, Costigan, & Nabors, 2001). Unfortunately, many of these programs have conceptual limitations, were publicized without supporting empirical data, or had minimal to no positive effects when evaluated objectively through randomized controlled trials (Furlong & Morrison, 1994; Tolan & Guerra, 1996; Weisz & Hawley, 1998).

More recently, "second generation" research has identified several evidence-based strategies that have proven effective in school intervention. For example, meta-analyses of more than 800 studies concerned with school discipline problems and challenging behaviours revealed the largest effect sizes for: (1) social skills training; (2) system-wide behavioural intervention; and (3) academic curricula modifications (Gottfredson, 1997; Lipsey, 1991). The first of these approaches, social skills training, promotes social competence by teaching students how to interact more effectively with peers and adults through enhanced conflict resolution, problem solving, negotiation, and friendship building abilities. At the core of this training is reinforcing students positively when they demonstrate these skills in vivo and express improved attitudes and standards of behaviour (Reid, Eddy, Fetrow, & Stoolmiller, 1999; Weissberg & Greenberg, 1997). Importantly, establishing positive social relationships among students and school personnel has been shown to mediate risk factors and facilitate the impact of preventive interventions on youth prosocial development (Dishion et al., 1991; Dryfoos, 1990; Kellam et al., 1998; O'Donnell et al., 1995).

Systems-based behavioural intervention in schools incorporates contemporary principles of positive behaviour support (PBS). Defined broadly, PBS is "the application of positive behavioural intervention and systems to achieve socially important behaviour change" (Sugar, Horner et al., 2000, p. 133). PBS models include the design of individual student behaviour support plans but have, as a primary goal, the implementation of prevention practices that target the entire school population. Although this large-scale application of behaviour-change technology encompasses many procedures, the critical components include: (1) setting consensus-driven behaviour expectations; (2) teaching critical interpersonal skills; (3) providing systematic positive reinforcement for meeting and exceeding performance criteria; (4) monitoring intervention efficacy continuously through data collection and analysis; (5) involving all stakeholders in the formulation of discipline practices (students,

teachers, administrators, and parents); and (6) reducing and eliminating reactive, punitive, and exclusionary strategies in favour of a proactive, preventive, and skill-building orientation (Horner & Sugai, 2000; Nelson, 1996; Taylor-Greene, et al., 1997; Walker, et al., 1996).

The area of academic curricular modification considers many influences but one of the most relevant is training educators to increase the academic engagement of their students. Academic engagement may be defined as students displaying passive behaviours (for example, silent reading, listening to instruction) or active behaviours (for example, writing, delivering an oral report, asking questions) that are related directly to classroom instruction. When teachers are able to increase, strengthen, and maintain high levels of student academic engagement there is a corresponding improvement in academic performance and achievement (DiPerna, Volpe, & Elliott, 2002; DuPaul, Ervin, Hook, & McGoey, 1998; Greenwood, 1991; Greenwood, Delquardi, & Hall, 1989; Ota & DuPaul, 2002). Academic engagement, then, is an observable and measurable behaviour that can be influenced by direct instructional approaches (for example, class-wide tutoring, and precision teaching) and positively-focused interventions that reduce disruption, distraction, and negative behaviours in the classroom.

In summary, there is consensus among many professionals that positive social and character development in schoolchildren, reduced prevalence of antisocial behaviour, and improved social climate are likely to be the product of large-scale, multi-component, skill-building, and preventive interventions. In this article we describe the results of whole-school positive behaviour support on discipline problems and the academic outcomes of students at an urban elementary school. Intervention was designed, implemented, and evaluated through technical assistance consultation that concentrated on evidence-based practices, systems-level service delivery, and empirical efficacy evaluation. Data are reported for multiple school years to document sustainability of the whole-school intervention.

Method

Participants and Setting

The setting was an elementary school (grades K–5) in an urban community located in the mid-west region of the United States. There were 666 students enrolled in school at the start of school Year 1, a population that decreased to 590 students by the conclusion of that year. The number of students enrolled in school was 550 during each of the remaining two school years. The ethnic composition of the student population was 88% African American, 5% Caucasian, 4% Hispanic, 2% Asian/Pacific, and 1% other. Approximately 90% of students qualified for free or reduced lunch, 11% received special education services, and 10% had English as a second language.

The elementary school participating in this project was self-selected. That is, school administrators initiated a referral for consultation to improve student discipline

practices and academic performance. For many years, the school was plagued with recurrent discipline problems, poor morale among staff, and academic underachievement.

Measurement

Several student discipline and academic achievement measures were recorded.

Office discipline referrals. Teachers and school administrators issued an office referral slip when students displayed behaviours that were a "rule infraction." The rules defined safe and respectful behaviours from the student population and had been established by the school before intervention. A referral slip was completed for any student who did not adhere to the school rules, specifying the behaviour and respective conditions (for example, inside the school, outside, or on the bus). The following behaviours produced an office referral: (1) fighting with peers; (2) a threat or assault toward staff; (3) classroom disruption; (4) problems during bus transportation; (5) defiance; and (6) property destruction (vandalism). Each office referral slip was retained by an administrator and subsequently entered in a computer database.

Suspensions. A suspension was given to students when they accumulated a predetermined number of office discipline referrals, and/or demonstrated particularly problematic behaviours. An administrative team at the school made the decision to suspend a student. Once suspended, the student had to remain out of school for one to nine days. Similar to office referrals, the number of suspensions and associated conditions were recorded in a computer database.

Academic performance. In October of each school year, third, fourth, and fifth grade students were tested on the Metropolitan Achievement Test–Seventh Edition (MAT-7; Harcourt Educational Measurement, 1998). The MAT-7 is a nationally norm-referenced standardized test administered by public school districts throughout the United States. The test measures critical skills related to reading comprehension and mathematics. Student performance scores were converted to percentile rankings relative to same-grade peers who were tested during a similar time frame.

The office discipline referral, suspension, and academic performance data were selected for several reasons. First, it has been demonstrated that office discipline referrals and detentions/suspensions are a useful metric in evaluating the effectiveness of school-wide behaviour support (Putnam, Luiselli, Handler, & Jefferson, 2003; Sugai, Sprague, Horner, & Walker, 2000; Wright & Dusek, 1998). Second, the school routinely documented disciplinary data and administered academic testing each year. Accordingly, a naturally occurring data source was available. And third, we judged that a positive effect from intervention would be revealed by changes in these measures.

Design and Procedures

The study spanned three consecutive school years. A preintervention phase represented the first semester of the 1999–2000 school year, commencing in August 1999 and concluding in January 2000. Intervention development and implementation proceeded from February 2000 through June 2001. A postintervention follow-up phase occurred during the third school year for the period August 2001 through April 2002.

Preintervention. During the preintervention phase, a policy handbook listing disciplinary practices was presented to students at the start of the school year. The school did not have a comprehensive or coordinated discipline program. As described earlier, office discipline referral slips were given as a consequence of problem behaviour. When a student received a referral slip, she/he was required to go to an administrator's office. The administrator reviewed the disciplinary incident with the student and determined a course of action. For example, a student might be sent back to the classroom, directed to work on assignments in another location, or remain present while a telephone call was made to her/his parents. A decision about school suspension, as warranted, was also made at this time.

Intervention. The whole-school intervention was developed with teachers and administrators through technical assistance consultation provided by doctoral-level psychologists from an out-of-state behavioural healthcare organization. This model of service delivery, known as Positive Schools (Putnam, Handler, & Luiselli, 2003) includes training of school personnel (primarily teachers), preparing a school-wide behaviour support plan, organizing staff responsible for various implementation functions, and coordinating efficacy evaluation. The consultants were present at school during regularly scheduled monthly visits, and also communicated with school personnel between on-site contacts via telephone conversations and email messages. During the intervention phase, the consultants were present at school for approximately two days each month.

Training of teachers and administrators involved didactic instruction about basic principles of applied behaviour analysis, group meetings to explain the process of program development, performance feedback following classroom observations, and administrative reviews that addressed data recording and decision making. During the first school year, the chief elements of the whole-school intervention were as follows:

1) Teachers, administrators, and other school personnel formed a behaviour support team, whose primary responsibility was to monitor program implementation. The team convened at times with the consultants, and also met between consultation visits. During meetings, team members discussed progress, reviewed data, and considered plan modifications.
2) The school's data management system for office discipline referrals and suspensions was refined so that information was reported and processed in a more

timely manner. School staff reported that office discipline referral slips had not been completed consistently during the preintervention phase. Therefore, procedures were developed to ensure that all students sent to the office received a corresponding and accurate referral slip. Consultation also focused on using the data to guide programmatic decisions, for example, by identifying functional influences and possible setting events for discipline problems.

3) The policy handbook was revised by adding positive behaviour expectations. The expectations emphasized what to do instead of what not to do, and were applicable to all common locations inside and outside of school (for example, corridors, lavatories, cafeteria, recess areas, buses). These expectations were taught to students, reviewed with them routinely, and posted conspicuously within the school.
4) A token reinforcement system was introduced. Teachers and administrators learned to identify desirable student behaviours, and deliver positive reinforcement using "Caught In The Act" (CIA) slips. Staff could give a CIA slip to a student when they observed her/him adhering to school rules, interacting cooperatively with peers, making good conflict resolution decisions, progressing academically, showing exemplary classroom behaviour, and similar. The presentation of CIA slips was left to the discretion of staff, who were encouraged to acknowledge students frequently and for a variety of behaviours and skills. Each slip included the name of the student, grade level, the acknowledged behaviour(s), and respective location.
(5) When students earned CIA slips, they placed them in a marked container, making them eligible for weekly and monthly lottery drawings. At each drawing, a teacher selected a pre-determined number of CIA slips. Students who had slips drawn received activity privileges at school, and prizes that included movie passes, coupons at fast-food restaurants, and other tangible items. Some of these "back-up" reinforcers were purchased by the school and others were donated by local merchants. Winners were also announced on a school television broadcast.

In the second school year, the consultants continued meeting with teachers and administrators to monitor effectiveness of the whole-school intervention. All teachers received additional training to improve their classroom instruction and behaviour management strategies. More intensive behaviour support plans were developed at their request, or when the administrative team judged the need for further classroom assistance. Like the whole-school intervention, classroom-specific applications emphasized behaviour expectations, recognition of exemplary student performance, and positive reinforcement. Active tracking of students' attention to task and teachers' instructional practices was performed in designated classrooms.

Throughout intervention, the policy of issuing office discipline referrals and evoking suspensions was the same as the preintervention phase.

Follow-up. At follow-up, the whole-school intervention continued, but with reduced consultation. Starting on the first month of the new school year (August

2001), the consultant no longer conducted site visits. For several months, consultation contact continued on a routine schedule through telephone and email communications. Eventually, correspondence with the consultant was faded to an "as needed" basis. Throughout the follow-up phase, the school continued to report discipline and academic achievement data.

Social validity. In May/June of each school year, teachers completed a multiple item questionnaire that sampled their opinions of and satisfaction with policies, performance responsibilities, elements of the physical environment, expectations, and the like. All items were in the form of a "yes/no" statement. Two items from the questionnaire were extracted to measure social validity of whole-school PBS: "The school discipline plan is effective" and "Student learning time is protected from disruption in your class." Distribution of the questionnaire in the first school year occurred after approximately three months' implementation of whole-school PBS. The questionnaire data for the next two school years were gathered one and two years later respectively.

Results

Figures 1 and 2 show the number of office discipline referrals and suspensions per 100 students each month across the three consecutive school years. Compared to the preintervention phase, office referrals increased during the initial three months of intervention, but occurred less frequently in the final two months of the first school year and throughout the following school year. The decrease in office referrals was maintained during the third (follow-up) school year.

For suspensions (Figure 2), frequency did not change appreciably in the five months that intervention was in place during the first school year. At the start of the second school year, suspensions were low but increased steadily, with the highest number recorded in the final month (June 2001). Beginning in the third school year (follow-up), suspensions remained low for five months, then increased to approximately the average frequency recorded at preintervention.

Figure 3 summarizes the disciplinary data across preintervention, intervention, and follow-up phases (average office referrals and suspensions each day per 100 students). For average office discipline referrals data were 1.3 in preintervention, .73 in intervention, and .54 in follow-up. The data for suspensions were .31 in preintervention, .25 in intervention, and .20 in follow-up.

The average student percentile ranks on the MAT-7 are presented in Figure 4. The preintervention phase corresponds with the second month of the first school year (October 1999), and the intervention phase represents test administration one year later, after eight months of implementing whole-school PBS. Both reading comprehension and mathematics percentile ranks improved from the first (preintervention) to the second (intervention) test dates, increasing 18 and 25 percentage points respectively.

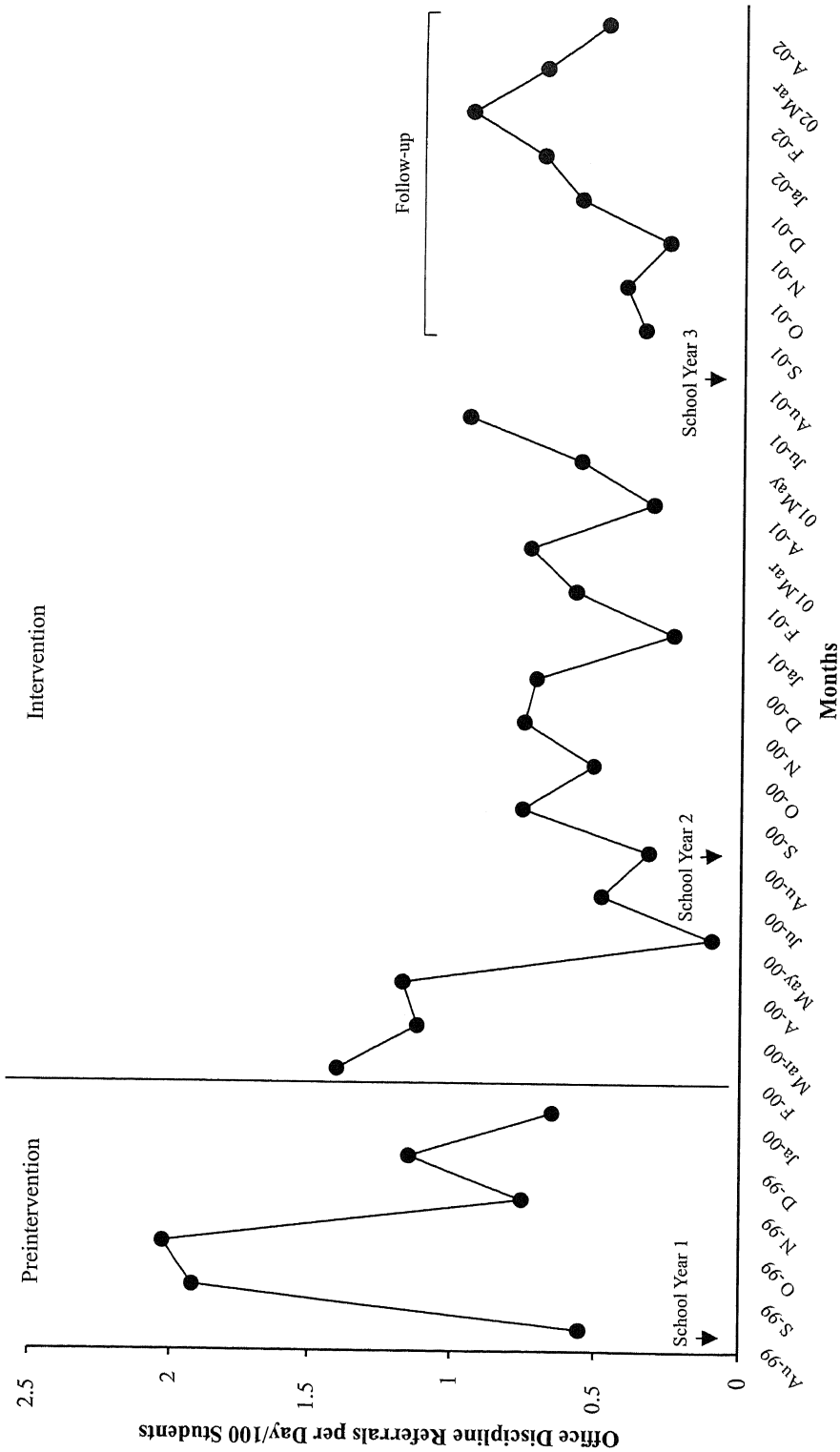

Figure 1. Number of office discipline referrals per 100 students each day

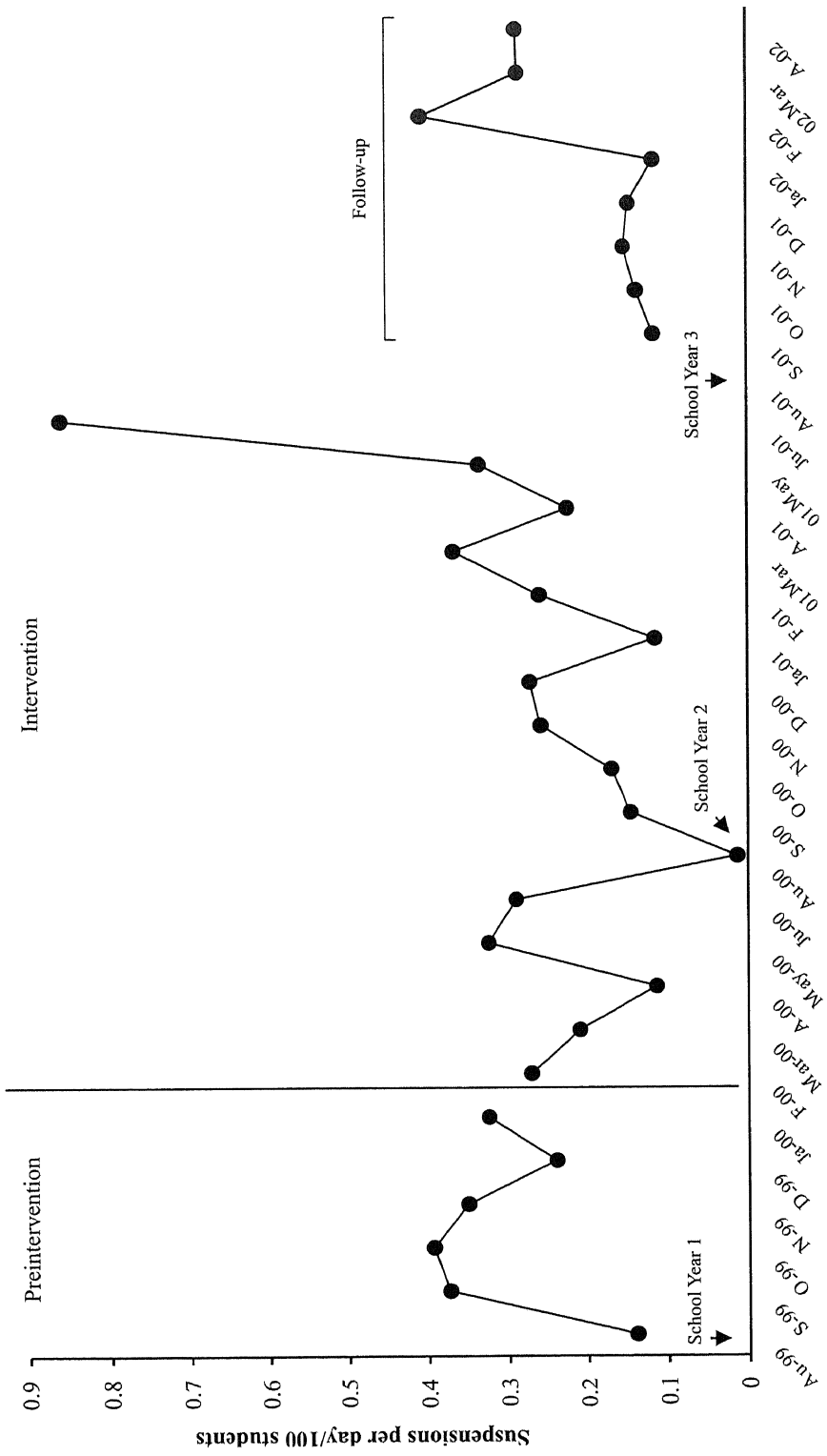

Figure 2. Number of suspensions per 100 students each day

Figure 1. Number of office discipline referrals per 100 students each day

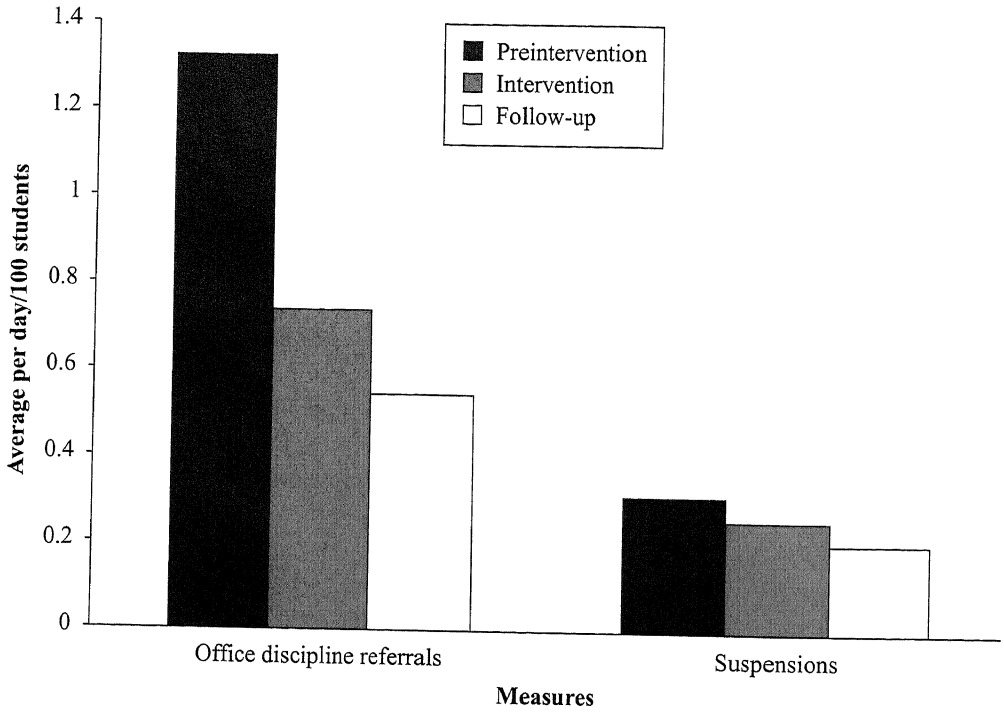

Figure 3. Average number of office discipline referrals and suspensions per 100 students each day during preintervention, intervention, and follow-up phases

Figure 5 depicts the social validity data from the two questionnaire items. For both questionnaire items, teachers responded with increased affirmative responses over the two years PBS was in effect.

Discussion

Student discipline problems decreased and academic performance improved following a PBS intervention at an urban elementary school. Consistent with the principles of PBS (Lewis & Sugai, 1999; Sugai & Horner, 2002), intervention included the entire student population, had a prevention focus, emphasized academic and social competence, stressed positive reinforcement, enlisted the full cooperation of school administrators, and evaluated outcome through data-based monitoring. The finding that intervention was associated with reduced office referrals and suspensions is consistent with previous research on whole-school PBS and discipline problems (Luiselli, Putnam, & Handler, 2001; Nelson, 1996; Taylor-Greene et al., 1997). Additionally, our results suggest that this intervention approach can benefit students' academic performance. Finally, teachers judged intervention as effective and contributing to better learning in classrooms.

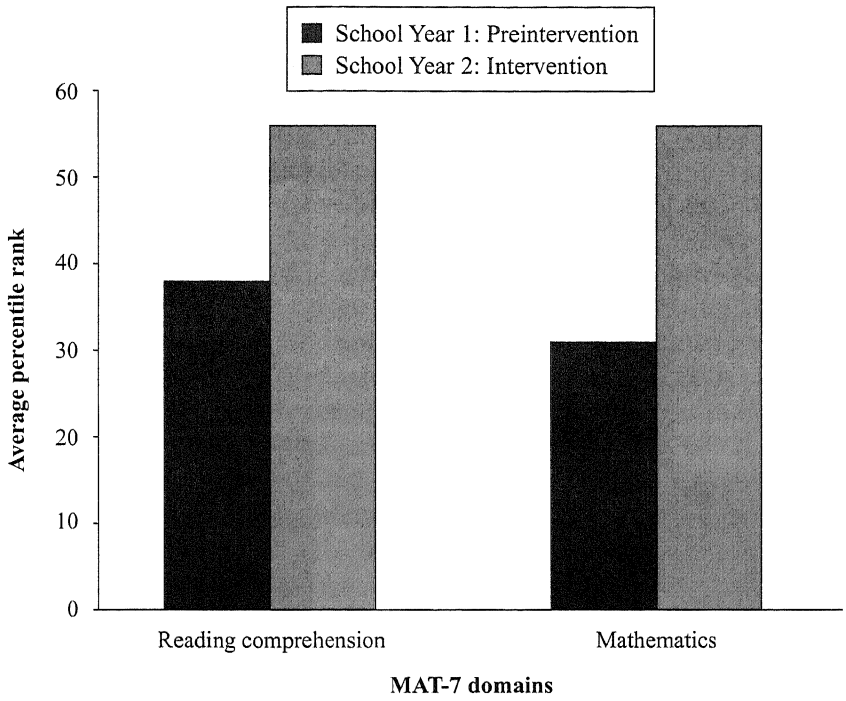

Figure 4. Average student percentile ranks for reading comprehension and mathematics on the MAT-7

Obtaining academic and scholastic data is an emerging evaluative measure of whole-school behaviour support. Reducing student discipline problems should increase exposure to classroom instruction that, in turn, facilitates skill acquisition (Najaka, Gottfredson, & Wilson, 2002; Walker & Shinn, 2002). To illustrate, Scott and Barrett (2004) reported decreased office discipline referrals and suspensions during two years of PBS intervention at an urban elementary school. Based on the loss of 20 minutes of instructional time per office referral, they calculated that with fewer discipline problems, there was a two-year average net gain of 10,620 minutes (29.5 days) in the classroom. With a suspension representing one day (six hours) of lost instructional time, there was a two-year average net gain of 50 days in school attendance. We propose that time allocated to classroom instruction and activity engagement is a meaningful data source which should respond favourably to PBS and predict improvement in academic performance indicators.

Longitudinal evaluation of PBS is critical in determining whether intervention effects endure over multiple school years (Luiselli, Putnam, & Sunderland, 2002; Putnam, Handler, Ramirez-Platt, & Luiselli, 2003; Taylor-Greene & Kartub, 2000). In the present study, decreased office discipline referrals and suspensions achieved during intervention were reduced further at follow-up. Intervention was maintained in the follow-up phase because, by that time, it had been fully adopted by school

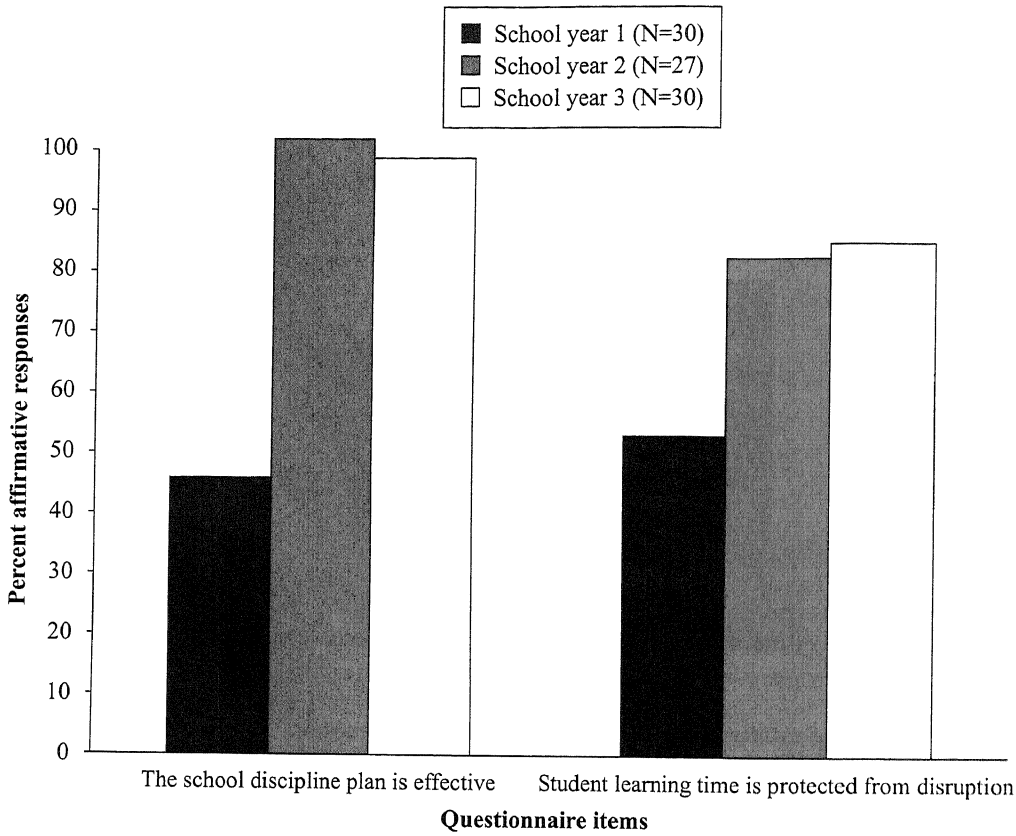

Figure 5. Percent affirmative responses by teachers to the two questionnaire items

personnel, absent on-site consultation. As reflected by the social validity assessment, the satisfaction of the recipients of intervention is perhaps one reason that promoted sustained implementation. Indeed, as Kennedy (2002) noted, consumer satisfaction and acceptability can be judged by "the degree to which social contexts support interventions across time" (p. 603).

The initial purposes of the consultative model employed in this study were documenting the school's discipline practices, introducing alternative methods, and training staff. From a systems perspective, formation of the behaviour support team was instrumental in building commitment from school personnel and allowing consultants to present and discuss recommendations. One of the dominant themes raised with the team was that there should be local control over intervention. That is, the relevant stakeholders should have maximum involvement in designing, applying, and determining the effectiveness of intervention. We advise that team building is a critical first step toward PBS that, if accomplished successfully, should define role responsibilities, facilitate consensus around discipline/academic objectives, and lead to permanent in-house program management by local school personnel.

The financial costs of developing and sustaining whole-school PBS cannot be overlooked. In the present study, consultation services were paid from the school budget, using funds that had been dedicated to a discipline improvement initiative. The school also allocated money toward the purchase of back-up reinforcers, but was able to acquire additional resources by soliciting donations from community merchants. Other state and federal funding options may be available for similar efforts within public school districts (for example, Title I and Title VI Accountability Funds, Safe and Drug Free Schools and Communities Grants). Keep in mind, however, that the expenditure can be offset by the considerable dollar savings realized when effective systems of student discipline are enacted. These monetary advantages include reduced administrative time devoted to disciplinary incidents (Scott & Barrett, 2004) and fewer out-of-district (private) educational placements for high-risk students (Putnam, Luiselli, Sennett, & Malonson, 2002).

Our study was quasi-experimental and, accordingly, results must be qualified in several ways. The AB design demonstrated that behaviour reduction and academic achievement were associated with, but could not be attributed unequivocally to, intervention. That is, the study cannot rule out possible threats to internal validity. Note further that the reliability (interobserver agreement) of recording office discipline referrals and school suspensions, and implementation integrity by teachers and administrators, were not assessed. To these limitations we add potential historical confounds such as non-planned remedial procedures, changing student populations, seasonal variability, and personnel turnover during the course of three school years.

We also found differential effects from intervention on office discipline referrals and suspensions. Although there was variability for both measures during the course of intervention, office referrals on average decreased with greater magnitude. This decrease in referrals is probably understated because teachers and administrators at the school informed us that office discipline referral slips were completed only for approximately one-half of students during preintervention, whereas accurate reporting was a mainstay once they implemented intervention. An additional constraint to these data is the gradually increasing trend evident during the second school year. This effect is particularly noteworthy for suspensions, which were issued more frequently each month, reaching the highest level in the final month of the school year. Importantly, office discipline referrals and suspensions were less frequent in the subsequent school year, albeit with continued variability. Although speculative, several factors may have accounted for these findings: (1) changes in student population from year to year; (2) seasonal influences (such as post-vacation return to school); and (3) inconsistently applied criteria by staff, especially administrators' decisions to suspend students. Considering these possibilities, it might be more desirable to examine the discipline data year-to-year instead of on a straight linear basis.

Despite the aforementioned limitations, this naturalistic study adds to the growing literature concerning whole-school PBS as a model of constructive discipline which can occasion and maintain improved school climate (Mayer, 2002). By virtue of

reducing discipline problems, teachers can devote more time to instruction and other learning opportunities that maximize educational progress. Findings to date suggest that whole-school PBS is a viable intervention technology, with defined components, the impact of which can be evaluated empirically (Horner et al., 2004). The contributions of ongoing and future PBS research will be the further elaboration and refinement of this large-scale systems approach to discipline management and academic attainment of students.

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