Psychology in the Schools, Vol. 42(5), 2005
Published online in Wiley InterScience (www.interscience.wiley.com).

DOI: 10.1002/pits.20091

ESTABLISHING AND SUSTAINING RESEARCH-BASED PRACTICES AT CENTENNIAL SCHOOL: A DESCRIPTIVE CASE STUDY OF SYSTEMIC CHANGE

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There has recently been increased attention given to the widely perceived gap between research and practice in school psychology and education. The purpose of this article is to describe how Centennial School of Lehigh University, an alternative day school for students with emotional and behavioral disorders, was able to successfully implement and sustain research-based practices. The use of such practices, in conjunction with organizational and systemic change, led to the significant reduction and eventually the virtual elimination of the use of and need for physical restraint and seclusionary time-out in the school, as well as a substantial increase in students' prosocial behavior. Procedures for reducing the gap between research and practice at Centennial School are discussed, including the methods used by school personnel to facilitate systems change, successfully implement research-based practices, and create a supportive organizational structure for sustaining effective practices. Possible roles for school psychologists in systems change efforts, potential barriers to the implementation of research-based practices, and recommendations as to how these barriers may be overcome also are provided. © 2005 Wiley Periodicals, Inc.

In recent years there has been increased attention given to the widely perceived gap between research and practice in school psychology and education (Christenson, Carlson, & Valdez, 2002; Stoiber & Kratochwill, 2000). The need for better integration between research-based assessment and intervention procedures and the daily work of school-based practitioners has been reflected in a variety of recent publications, including articles in special issues of *School Psychology Review* (e.g., Ringeisen, Henderson, & Hoagwood, 2003; DuPaul, 2003) and other influential journals. In addition, although there has been a widely recognized and much discussed need for a "paradigm shift" (Reschly & Ysseldyke, 2002) in school psychology, many school psychologists continue to engage in practices not adequately supported by research (Stoiber & Kratochwill, 2000).

Despite very real difficulties and barriers, reducing the gap between research and practice is possible, particularly if school personnel are actively invested and involved in the process (Grimes & Tilly, 1996). To effectively reduce this gap, however, it is likely that school psychologists will need to become more involved in system reform, applying principles and practices of organizational change and capacity building (Curtis & Stollar, 1996; Ringeisen et al., 2003). In addition, to produce long-term effects, research-based practices must not only be adopted but also sustained. Based on their own experiences conducting research in public schools, Fuchs and Fuchs (2001) identified five important principles for sustaining research-based practices, including (1) the importance of a key individual, (2) control of resources (e.g., availability of discretionary funds for implementing programmatic changes; allocation of time for additional teacher

The authors would like to express their sincere appreciation to the teachers and staff of Centennial School for their dedication and hard work in truly making it a positive environment where teachers, students, and parents want to be.

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training), (3) accountability for student outcomes, (4) tolerance for initial implementation difficulties, and (5) recognition of accomplishments. In a related vein, Fogt and Piripavel (2002) described five important elements for creating and sustaining systems change within schools, including (1) creating a shared vision; (2) establishing appropriate student expectations; (3) developing a curriculum to teach and reward social skills; (4) teaching and rewarding positive, appropriate behavior; and (5) instituting a comprehensive system of behavioral support. Collectively, these principles were important elements for establishing and sustaining research-based practice at Centennial School of Lehigh University, an alternative day school for students who exhibit challenging and highly disruptive behaviors.

In the span of a 4-year period, the number of physical restraints at Centennial School decreased from a high of 1,064 during the 1997–1998 school year (a mean of 14 physical restraints per student enrolled) to 0 during the 1999–2000 school year. Further, this trend has continued since that time, with the number of physical restraints continuing to be at or near a level of zero. Also, and as important, since the implementation of organizational systems change efforts began in 1998, there has been a substantial increase in appropriate, prosocial behaviors exhibited by students, as well as in the percentage of students successfully returned and included in their original school district placements, often in less restrictive environments.

In this article, we describe how and why systemic change within the school was able to take place, what research-based practices were implemented, the roles for school psychologists in systems change efforts, possible barriers to implementing research-based practices, and the ways in which these barriers may be overcome within both public and alternative schools. Our purpose is not to describe systemic change efforts in terms of well-controlled experimental research methodology but rather to provide a guide for establishing and sustaining research-based practice based on our collective experience and to generate hypotheses for future empirical analysis. Our goal, therefore, is not traditional program evaluation, but rather to describe a process for changing schools to support research-based practice and to evaluate the impact of this change in a systematic and feasible manner. To place the changes that occurred within an appropriate context, we first provide an introduction to Centennial School and the students it serves.

Centennial School of Lehigh University

Centennial School of Lehigh University is an Approved Private School of the Commonwealth of Pennsylvania, funded through the Pennsylvania Department of Education and operated and governed by Lehigh University. The school provides educational and other services (e.g., curricular adaptations and modifications; speech and language services; adapted physical education; transition supports) for children and youth ages 6–21 classified under the Individuals with Disabilities Education Act (IDEA) as emotionally disturbed or autistic, with the majority (approximately 90%) placed in emotional support classrooms. Students are referred to Centennial School after multidisciplinary teams from area school districts make the determination that they do not have the necessary supports or resources for adequately addressing students' challenging and disruptive behaviors. Centennial School comprises children and adolescents from nearly 40 area school districts, and approximately 80–100 students and their families receive services from Centennial School annually. The student body is predominately Caucasian (76%), although it includes individuals from other racial and ethnic groups, including students of African-American (13%) and Hispanic-American (11%) heritage.

In addition to providing educational services for students with disabilities, Centennial School serves as a training facility for graduate students in special education and other school-based professions. Graduate students work full-time as teachers during the day and take coursework at Lehigh University or other area colleges and universities in the evenings. A rigorous on-site

professional development program supplements students' coursework. Training at the school emphasizes the performance of teaching behaviors under the tutelage of mentors and program supervisors, and in this regard resembles an apprenticeship approach for imparting technical and professional skills.

Where We Began: Identifying the Problems

Prior to implementing comprehensive systemic change at Centennial School, violent and disruptive student behaviors, as well as the use of negative sanctions such as seclusionary time-out and physical restraint, were commonplace and occurred at high levels. During the first 20 days of the 1998–1999 school year, for example, students classified with emotional disturbance ($N = 79$) spent an average of 782 minutes per day in the school's time-out rooms and were physically restrained 122 times. Like many day schools for children and youth with emotional and behavioral disorders, Centennial School had a number of research-based program components in place that year, including a token economy, point sheets, individual student goals, academic accommodations, reinforcement systems, and behavior contracts. Yet despite the presence of these techniques and the abundant use of seclusionary time-out and physical restraint, the frequency and severity of students' disruptive behavior remained starkly undiminished.

Observations and interviews of school staff at the time revealed that otherwise well-intentioned teachers generally held minimal expectations for student performance. Active engaged time (i.e., the proportion of time students were actively engaged versus the time actually allocated for instruction) ranged between 11% and 13% among the various classrooms. A number of teachers acknowledged that academic subjects were programmed predominately at students' mastery (rather than instructional) levels in attempts, later to be judged futile, to "keep students calm" rather than challenge them and risk explosive behavior outbursts. Interviews also revealed that teachers and administrative staff believed they were using "effective" techniques and strategies and, when asked to explain the high rates of violent behavior within the school, generally pointed to the "complexity and severity" of the students who were enrolled in the program. Teachers and staff appeared to be locked into unproductive patterns of behavior that resulted continually in similar outcomes for students; a notion that was supported further when data on physical restraints from the previous year were later compiled. An examination of records from 1997 to 1998 showed that more than 1,000 physical restraints had been conducted with the 76 students in average daily attendance, a number that would have been equaled or surpassed the following year had the rate of physical restraints gone unabated.

The Solution Part 1: Creating the Foundation for Systems Change

Systems change at Centennial School was largely a product of an organizational restructuring that began in 1998 with the introduction of a new director and the subsequent development of a process for (1) assessing the educational environment, (2) introducing research-based practices, (3) evaluating implementation, and (4) making adjustments for improving outcomes when necessary. This process, which involves basic problem-solving elements (Tilly, 2002), was designed to be participatory in nature, bringing administrators, teachers, and researchers together for discussions that centered on the disparities between high levels of violent and disruptive student behavior and the expressed program goal of eventually returning students to their local school district environments. Restructuring efforts focused on a systems approach to service delivery and examined the interconnectedness of various program components: namely, program philosophy, goals, student identification and entry criteria, design and operations, curriculum and methods, community involvement, exit procedures, and evaluation (Grosenick, George, & George, 1990). This framework, along with the professional expertise readily available from faculty researchers in

Lehigh University's College of Education, set the context for an ongoing process of program renewal that would dramatically affect student outcomes and the overall climate of the school.

A number of individuals (e.g., Senge, Cambron-McCabe, & Lucas, 2000; Tilly, 2002) have noted that our premises and assumptions about the world frequently lead to observations and conclusions that support the initial premise. Such conditions appeared to be operating at Centennial School, where many staff members subscribed to certain beliefs that in turn affected their observations and conclusions about characteristics of children and youth with emotional and behavioral disorders and the possibilities or likelihood of student behavioral change. For example, many perceived that students' behaviors were largely a result of external factors over which they had little influence or control. Others perceived that students were simply incapable of changing their behaviors, as suggested by educational or psychiatric labels such as emotional disturbance, oppositional defiant disorder, and/or bipolar disorder (Fogt & Piripavel, 2002; George, 2000).

Consequently, fundamental to the change process at Centennial was the development—spearheaded by the director—of a vision and goals that would serve to distinguish the school from other service delivery options for students with emotional and behavioral disorders as well as guide future practice (George, 2000). Teachers and staff were asked to reflect on their assumptions about the probability of student behavioral change, and how their own beliefs and behaviors may be inadvertently contributing to problems. In addition, an important initial step in developing a vision and mission statement was to ask school staff to contemplate and collectively respond to questions adapted from the work of Kameenui and Simmons (1990): What do we want our school to look like? How do we want students to treat one another? How do we want students to treat staff? How do we want students to remember us at year's end? How do we want students to remember us 10 years from now?

In part because of the widely held perception among staff that improvements in student behavior were needed—a perception that united teachers and staff in a common purpose—Centennial School staff embraced a new mission statement commensurate with our vision. Specifically, Centennial School's mission statement became to "create a place where students, staff, and parents want to be, and where they can learn new skills that would benefit them now and in the future"—an ambitious aim given the climate of the school at that time. To help achieve this mission, the staff adopted three goals for guiding their work: (1) develop an enriched and stimulating curriculum; (2) create a safe, civil learning environment; and (3) establish greater partnerships with parents (Riley, 1999). In developing a shared vision for a better school and cultivating a "culture of hope" rather than one of despair (George & George, 2000), a foundation for systems change was created.

The Solution Part 2: Incorporating Research-Based Practices

As others (e.g., Sugai, Horner, & Gresham, 2002) have also recognized and acknowledged, to change student behavior it is often first necessary to change teacher behavior. As such, the incorporation of research-based practices at Centennial focused on efforts to train teachers in a variety of effective, evidence-based interventions. A summary of research-based behavioral and instructional elements important for transforming the social climate and learning environment at Centennial School are presented here, with special attention given to the adoption of schoolwide behavior support, as this intervention was likely the single most important and comprehensive intervention used in the school within the context of systems change efforts.

A Schoolwide Approach for Effective Behavior Support

Schoolwide effective behavior support (Horner & Sugai, 2000; Sugai & Horner, 2002) is a multilevel, proactive model of discipline that emphasizes direct intervention approaches (e.g.,

teaching expectations, monitoring student performance, and providing immediate and specific feedback) across multiple school settings (e.g., classrooms, cafeteria, bus, hallways, etc.). The three levels of schoolwide behavior support (i.e., universal, targeted, individual) are interrelated and coordinated with each other to maximize their effectiveness (Todd, Horner, Sugai, & Sprague, 1999). Horner et al. (2004) described seven key features of schoolwide behavior support: (1) define 3 to 5 schoolwide expectations for appropriate behavior; (2) actively teach the schoolwide behavioral expectations to all students; (3) monitor and acknowledge students for engaging in behavioral expectations; (4) correct problem behaviors using a consistently administered continuum of behavioral consequences; (5) gather and use information about student behavior to evaluate and guide decision making; (6) obtain leadership of schoolwide practices from an administrator committed to providing adequate support and resources; and (7) procure district-level support.

Research examining the efficacy of schoolwide behavior support indicates that it is a potentially powerful intervention for decreasing episodes of antisocial behavior. For example, universal interventions have been found to be effective with approximately 80%–90% of students (Colvin, Kameenui, & Sugai, 1993; Sugai et al., 2002; Taylor-Greene & Kartub, 2000). For those students whose behavior is still not at acceptable levels following the implementation of universal interventions, targeted interventions (for 5%–10% of the students who do not respond favorably to universal intervention) or individual interventions (for 1%–5% of students who exhibit chronic patterns of antisocial behavior) may be necessary (Walker, Ramsey, & Gresham, 2004).

Further, the use of schoolwide behavior support procedures has been found to be effective in other settings beyond the classroom. Specifically, recent studies have illustrated how a proactive schoolwide behavior approach can reduce the frequency of behavioral incidents occurring during bus rides (Putnam, Handler, Ramirez-Platt, & Luiselli, 2003), recess (Todd, Haugen, Anderson, & Spriggs, 2002), in the cafeteria, and during hallway transitions (Lewis, Sugai, & Colvin, 1998).

Centennial adopted the schoolwide model implemented successfully at Fern Ridge Middle School in Veneta, Oregon (Taylor-Greene & Kartub, 2000), marking an early attempt to ascertain the possible benefits such a system could have in an alternative day school for students classified as emotionally disturbed. Like the Fern Ridge model, the Centennial system consists of three levels of intervention: universal, targeted, and individual. Unlike Fern Ridge, however, the student body at Centennial School is composed entirely of students with severe behavior disorders who therefore fall within the first percentile in terms of behavior extremity. Adoption of a schoolwide system of behavior support, in conjunction with other research-based practices of behavior management and support, led to substantial reductions in incidents of antisocial behavior in the school, and concomitant increases in students' prosocial behavior. Creating a more positive and predictable school environment though the use of schoolwide effective behavior support helped immunize Centennial students from engaging in antisocial behavior and created an inviting school climate where all students feel valued. By attending to the social and relational context in which learning occurs, a more positive, nurturing, and caring climate was created (Baker, Terry, Bridger, & Winsor, 1997).

Other Research-Based Practices

In addition to schoolwide behavior support, a number of other research-based practices designed to address behavioral and academic problems were implemented at Centennial School. For example, research-based academic practices included placing a greater emphasis on matching curriculum to students' instructional levels through the use of curriculum-based assessment and progress monitoring (Shapiro, 1996) to prevent student boredom or frustration—experiences that often lead to the exhibition of challenging behavior. Other interventions included modifying curriculum to promote desirable behavior by making it more it stimulating and relevant (Dunlap & Kern,

1996; Kern, Bambara, & Fogt, 2002); increasing students' academic engaged time and active responding through direct instruction procedures (Carnine, Granzin, & Becker, 1988); and training teachers to recognize that effective academic instruction and effective behavior management are reciprocally and inextricably related (Dunlap & Kern, 1996).

Another research-based practice implemented to modify antisocial behavior included increasing the use of positive reinforcement (e.g., implementing weekly award ceremonies) with students, contingent on the exhibition of appropriate behavior (Alberto & Troutman, 2003). For example, teachers were expected and soon demonstrated (after receiving performance feedback) the ability to implement and sustain a high ratio of positive to neutral statements and to significantly reduce the use of negative statements toward students in an attempt to make the school environment more reinforcing and increase the positive, prosocial interactions between students and staff. This emphasis on creating a positive environment for students is a critical element in reducing the "sea of negativity" (Jenson, Olympia, Farley, & Clark, 2004, p. 67) and excessively punitive practices often observed in schools (Maag, 2001). It also is consistent with the recent movement within psychology and education toward modifying problem contexts rather than problem behaviors (Carr et al., 2002) and developing psychologically healthy school environments (Baker, Dilly, Aupperlee, & Patil, 2003) to promote prosocial skills acquisition.

Additional research-based interventions included creating a more effective token economy system (Alberto & Troutman, 2003) tied to a "school store" which students could access during the school day; teaching students alternative, functional replacement behaviors (Walker et al., 2004); deemphasizing response-cost and other punishment procedures; making use of a variety of effective antecedent strategies such as reviewing school rules and expectations prior to beginning classroom instruction (Sugai et al., 2002); training staff to view problem behavior in terms of behavioral function rather than topography; incorporating "spirit days" throughout the year (e.g., Crazy Hat Day, Sports Day) to enhance school spirit and positive relations between students and staff; designing assessment to be linked to intervention in the context of a problem-solving model (Tilly, 2002); teaching students to self-monitor (Shapiro, Durnan, Post, & Skibitsky-Levinson, 2002) and to use problem-solving strategies to more effectively self-manage their behavior (Fogt & Piripavel, 2002); and ensuring that teaching staff respond both verbally and nonverbally in a calm, unemotional, nondefensive manner to students' noncompliant or disruptive behavior (Walker et al., 2004).

Other research-based practices used by Centennial staff included providing social skills instruction through use of the Second Step program (Taub, 2002) and embedding it throughout the day within naturalistic contexts; creating a "school climate committee" made up of school staff members charged with creatively developing reinforcing activities and events (e.g., school carnival) to enhance the school's social climate; training teachers to give directives to students that were clear, direct, and specific (Walker et al., 2004); teaching students to accurately identify and then de-escalate feelings of anger by removing themselves from problem situations (Fogt & Piripavel, 2002); responding proactively to "low level" misbehavior through such procedures as planned ignoring (extinction) and differential reinforcement (Alberto & Troutman, 2003); having teachers state student goals and expectations clearly and often and empowering all teachers and staff to enforce school rules (Walker et al., 2004); scheduling weekly staff meetings to discuss and problem-solve various student issues; using logical and natural consequences (Fogt & Piripavel, 2002), including police intervention, contingent on more severe instances of antisocial behavior (e.g., physical assaults against students and/or teachers); and rejecting the use of currently popular but frequently ineffective, misguided, and inflexible approaches to school safety and discipline (e.g., metal detectors; "zero tolerance" policies; student exclusion or expulsion). Finally, for both academic and behavioral problems, teachers were taught and subsequently reinforced for utilizing data when making decisions about students' instructional and behavioral programs.

Moreover, greater attempts were made to strengthen relationships with parents and caregivers by (1) increasing parent contact and emphasizing students' positive school accomplishments; (2) creating a parent and student handbook where policies and procedures could be clearly communicated and that informs students how to behave and succeed (Peters, 1994) in school by focusing on what students should be doing rather than on what they should avoid; (3) holding two "parent nights" per year where parents and caregivers could come to the school after hours and meet with their child's teachers; (4) initiating a parent advisory council so that parents could participate in school activities and governance; (5) producing a newsletter for parents focusing on student successes; and (6) developing an "honors program" ceremony where students of high achievement could celebrate their accomplishments with their parents and school staff. Such programs helped to create a greater, more positive alliance between parents, caregivers, and teachers.

Furthermore, given the importance of the effective integration and coordination of family, school, and community services to adequately meet students' diverse needs (Knoff, 1996; Power, DuPaul, Shapiro, & Kazak, 2003), a bilingual individual was hired to serve as a community liaison across multiple environments. Efforts were made to create a more effective wraparound approach to positive behavior support (Eber, Sugai, Smith, & Scott, 2002), including training bus drivers on simple, research-based behavioral support strategies. Greater collaboration between the school and community service providers was also given increased emphasis, although such collaboration was often contingent on the demonstrated efficacy of the community services provided. Although it is generally assumed that collaboration between schools and outside agencies and programs is beneficial, it is perhaps not sufficiently recognized that the demonstration of the effectiveness of community-based programs should be an important consideration prior to their adoption.

It should be emphasized that some (though not all) of the research-based practices listed above were used by Centennial staff *prior to* organizational changes made at the school. Despite their use, however, the integrity with which the practices were implemented and the degree to which they were successful was clearly limited. Using research-based practices without the necessary structural and organizational components to sustain their use is analogous to having scattered pieces of a jigsaw puzzle spread out on a table; the right puzzle pieces (i.e., research-based practices) may be present, but in order for the puzzle to be complete the pieces must be properly aligned and synchronized. Creating a supportive organizational structure is therefore essential for sustaining effective, research-based practices.

The Solution Part 3: Creating a Supportive Organizational Structure for Sustaining Effective Practices

A principal goal at Centennial is to integrate effective, research-based practices into the school setting through a systems approach. Initiatives that are simply "added on" tend to be less powerful than innovations that align well with other program components (Anne E. Casey Foundation, 1995). Integration through organizational restructuring allows for a central focus and unified commitment, as well as the dispersal of targeted, sufficient resources necessary for sustainability. A guiding assumption at Centennial School is that form follows function; that is, the organizational structure of the school should facilitate the accomplishment of anticipated results.

New practices for achieving Centennial's goals are assessed by committees of administrators and teachers not only to determine the efficacy of the newly adopted practices but also the school's capacity to support them. The latter assessment entails an examination of organizational structure to ascertain which features support (or detract from) successful implementation. For example, analyses of early adoption efforts uncovered a number of potential impediments to implementation in such areas as communication, staff development, allocation of fiscal resources, and the high rates of annual staff attrition (Centennial's mission as a teacher-training facility results in staff

turnover of between 25% and 50% every year because they graduate from their teaching programs). Through ongoing program evaluation, (i.e., soliciting input from teachers, reviewing outcome data, attending to staff relationships, and focusing on desired results), these potential threats to implementation were either minimized or eliminated altogether by simply adapting the organizational structure of the school.

Descriptions of the numerous modifications to the school's organizational structure are beyond the scope of this article, but a partial list illustrates the degree to which school personnel are committed to developing structures for supporting best practice. Some of the modifications to the school structure included "flattening" the organizational flowchart to facilitate communication; increasing professional development activities (from less than 25 minutes to more than 3 hours per week without lengthening teachers' workweeks); replacing the traditional model of one-to-one aides with teacher teams (Giangreco, Edelman, Luiselli, & MacFarland, 1997); and strategically shifting fiscal resources to sustain newly adopted practices. As important, when teams of administrators and teachers determine that particular practices are effective, they are incorporated into the school's policy and procedures manual; a maneuver that serves to standardize future practices across teachers and programs and one that provides a foundation for the preparation of newly hired personnel. Administrators, with input from teachers, revise the policy and procedures manual annually.

This *teaming* approach; that is, the bringing together of small groups of stakeholders for gathering information to improve implementation, places problem solving in the hands of those closest to the problems and recognizes that regardless of the prescriptive nature of certain innovations, implementation usually differs across school environments, reflecting the unique variations found among schools (Grimes & Tilly, 1996). Bringing together those who are asked to implement new practices is perhaps the most direct method of uncovering implementation problems and the most effective way of resolving difficulties that might arise. In the case of Centennial School, program teams meet weekly to review and discuss implementation issues and to make recommendations for improving them. Such an approach builds commitment among staff and establishes a collective sense of organizational purpose—elements that are critical for effective change to occur (Senge et al., 2000).

Possible Barriers and How to Overcome Them

Studies on systems change initiatives suggest that sustainability depends on a number of elements: a well-articulated rationale for change, the quality of leadership, commitment from staff, sufficient resources (Anne E. Casey Foundation, 1995), tolerance for initial implementation difficulties, recognition of accomplishments (Fuchs & Fuchs, 2001; Grimes & Tilly, 1996), and responsiveness to organizational factors (Deal & Kennedy, 1999). At Centennial School, as in most schools, many of these elements were not present at the beginning of the change process but were cultivated during it.

The primary aim for adopting new research-based practices at Centennial was to create a safer learning environment; a goal nearly all teachers could support. At first, however, some teachers, fearful for their safety and the safety of the students, were not supportive of the proposed methods for reaching that goal. Historically, physical restraint was employed in the school to ensure safety, that is, when students presented a clear and present danger to themselves, others, or property. Some teachers speculated that the elimination of physical restraint would likely endanger students and place staff at risk for injury—a circumstance they were unwilling to suffer, given the already violent nature of the school (e.g., more than 30 assaults against teachers during the year of the schoolwide innovation, 16 of them serious enough to warrant police intervention). The notion of focusing on positive behavior in such a violent climate simply seemed to some as

counterintuitive. As revealed in later interviews, initially reluctant teachers identified three factors for overcoming their feelings of resistance to the proposed changes: (1) early, small-scale success; (2) the use of data; and (3) the practical, positive impact on working conditions.

Early, Small-Scale Success

The earliest intervention at the school began with a single elementary classroom where teachers reported feelings of distress as a consequence of high levels of student noncompliant, disruptive, and aggressive behavior. During the first 66 days of the 1998–1999 school year, those teachers conducted 85 physical restraints and recorded 210 episodes of seclusionary time-out with the six students in the class. An intervention that included an emphasis on curriculum, instructional delivery, class schedules (based on the Premack principle of providing access to high frequency behavior contingent on the occurrence of low frequency behavior), point sheets, and a token economy was employed. Data on the efficacy of the classroom intervention showed a marked decrease in the use of physical restraints from an average of 1.3 restraints per day prior to the intervention to 0.05 per day thereafter, and a similar decline in episodes of time-out (3.18 per day to 0.6 per day).

This initial intervention had both pedagogical and symbolic value for further systems change in the school. Although simple in nature, the intervention within this classroom illustrates a number of lessons that may prove beneficial for establishing a platform for broader program change. Pedagogically, intervention efforts concentrated on the basics of effective teaching, emphasizing teaching behaviors that are both supported in the professional literature (see various teaching strategies in the section entitled "Other Research-Based Practices" in this article for a listing of several of the interventions employed) and that most teachers had exposure to as part of their preservice and ongoing training at the school. As such, the development of the intervention required little further training. In addition, the intervention served to align certain program components, most of which were already in place and thereby provided teachers with a system for accomplishing their work. Teachers in adjacent classrooms who witnessed the effectiveness of the small-scale intervention became more accepting of the impending changes and began incorporating new procedures into their repertoires. Subsequently, the prevalence of physical restraint and seclusionary time-out diminished throughout the school. During the last 20 days of the 1998–1999 school year, there were no episodes of physical restraint in the school, and the time students spent in seclusionary time-out had decreased from an average of 782 to 181 minutes per day.

Use of Data

A second factor mentioned by teachers for eroding early resistance was the use of data for making program decisions. As with most schools, teachers collected large amounts of quantifiable information across a number of areas, including physical restraint and seclusionary time-out, but they seldom used the data when making program decisions. Consequently, teachers held widely discrepant perceptions of program effectiveness, as well as the actual use of physical restraint (teacher responses regarding the use of physical restraint in the school ranged from "hardly ever" to "excessive"), depending on their position in the school. Data on physical restraint were gathered and displayed to help answer questions and monitor progress, with data from the preceding year serving as baseline information. The data demonstrated clearly to teachers and staff that physical restraint was being used excessively throughout the school. According to later teacher interviews, this had a powerful effect on diminishing initial staff resistance to proposed changes, as data showed ongoing declines in the use of physical restraint, which subsequently reinforced teachers' efforts.

Practical, Positive Impact

According to teachers, one of the most powerful influences for helping them overcome early resistance was the practical difference the newly adopted practices made in their daily lives. As teachers incorporated new practices and procedures, the number of crises and concomitant need for negative sanctions such as physical restraint and seclusionary time-out sharply diminished. Rather than reacting to students' misbehavior, teachers were able to shift focus to teaching appropriate behavior and, by doing so, contribute to a safer school climate in which to work. Not surprisingly, teachers expressed a preference in follow-up interviews for doing more of what they had been prepared and trained to do; namely, prepare curriculum and deliver instruction rather than spend time and energy using counteraggressive procedures such as physical restraint.

There were a number of collateral benefits as well. As students' behavior improved, there were fewer crises, and as the frequency of crises declined, so did the need for crisis staff. During the second year of its innovation (1999–2000), Centennial reduced staff by 14% and increased student enrollment by nearly 8%. The fiscal resources saved through staff attrition were reinvested in curriculum materials, audio-visual equipment, and other furnishings for the school, as well as activities for increasing parent participation—activities that favorably affected teachers' work conditions and made a practical difference in their professional lives, thus creating a win-win situation in which everyone (i.e., students, teachers, administrators) benefited (Miller, 2003).

Where We Are Now: A Changed School

As a result of the organizational changes described earlier, including the implementation of research-based practices and the supports to maintain them, Centennial School is a far different place, both for students and for staff, than it was just a few short years ago. Indeed, Centennial School of Lehigh University is currently the only approved private school in the state of Pennsylvania providing educational and other services for students with emotional and behavioral disorders that opposes and rejects the use of both physical restraint and seclusionary time-out. Further, representatives from school districts and organizations in several states, including Texas, Washington, South Dakota, New York, New Jersey, Florida, North Carolina, and Pennsylvania, have visited or enquired about Centennial School to learn more about its behavior support strategies so they may implement them in their own schools. Finally, because of the unique training experience the school was now able to provide, the Centennial School of Lehigh University Predoctoral Internship in Professional Psychology, an internship designed primarily and specifically for doctoral-level school psychologists, was created in 2002.

Roles for the School Psychologist in Systems Change Efforts

School psychologists can play an important role in systems change efforts. Possible roles for school psychologists include providing inservice training on research-based interventions to teachers and, because inservice training alone is unlikely to lead to significant changes in teachers' behaviors (Shapiro, Miller, Sawka, Gardill, & Handler, 1999), supporting this training through behavioral consultation. To enhance the likelihood consultation will be effective, school psychologists may need to employ direct behavioral consultation procedures (Watson & Robinson, 1996) with teachers, such as modeling, coaching, performance feedback, and intervention evaluation.

Perhaps the most important role for the school psychologist in systems change efforts, however, is in the area of organizational consultation. School psychologists serving in this role must be knowledgeable about not only research-based practices but also organizational development and change, the service structure of schools, school reform issues, strategic planning, and working effectively with school administrators (Erchul & Martens, 2002; Knoff & Curtis, 1996).

Furthermore, school psychologists must possess strong interpersonal skills and be cognizant of the science and practice of social influence (Cialdini, 1993), including the bases of social power and their application to school consultation (Erchul & Martens, 2002). Although traditionally much of the consultation that school psychologists provide is typically with teachers (i.e., at the micro level), to affect systems change (i.e., at the macro level) school psychologists must consult with those in schools who have greater power and authority (e.g., superintendents; principals). It is particularly important for school psychologists to consult effectively with building principals, because principals are the "true power" in most schools and have "much more immediate, day-to-day power over the consultant's functioning" than do other school officials (Marks, 1995, p. 31).

It is equally important to recognize, however, that school psychologists often have influence but may lack the power to actually authorize, enact, or enforce changes in the system. Given this situation, school psychologists are encouraged to use the power they do possess (e.g., expert power; referent power), to work *smarter* rather than *harder*, and to *start small but think big*, as was done at Centennial School. For example, working in a consultative and collaborative basis with administrators and teachers to ensure that effective research-based practices are implemented in one setting (e.g., a single classroom) and, if successful, having this serve as a model for later program expansion.

When school administrators and teachers see the effectiveness of such an approach in one setting, and how this effectiveness often leads not only to student behavioral improvements but also to less job stress and greater job satisfaction among school staff, they are more likely to embrace its use on a more comprehensive, systemic level. Further, initially implementing change on a small scale can be useful for identifying and ameliorating problems before they can impede broader applications of systems change efforts. Systemic change is most likely to occur when pertinent stakeholders (e.g., school psychologists, teachers, school administrators) are in substantial agreement regarding the importance of a problem and the need for solutions to solve it.

Final Points

A few final points should be made. First, based on the description of Centennial School provided in this article (e.g., smaller number of students and student-teacher ratio than most typical public schools), some readers may draw the conclusion that the organizational and reform efforts described herein might not be as applicable to or as effective in public school settings. We disagree, particularly given that Centennial had several disadvantages in comparison to most public schools. For example, because Centennial School is a teacher-training facility, teachers are frequently much less knowledgeable and skilled (at least initially) than those typically employed in public school settings, and teacher turnover is much higher than at most public schools, necessitating constant teacher training. Further, all of the students in the school exhibited extremely challenging behavior; indeed, each of the students at Centennial was referred because area school districts made the determination that they could not adequately or effectively support these students in public school settings. As such, organizational change had to occur under conditions in which largely inexperienced teachers had to teach some of the most behaviorally challenging students.

Second, although we are confident the dramatic decrease within the school of challenging, disruptive student behavior was the result of the interventions described herein, this was not an empirical case study with a high degree of methodological rigor. As such, our conclusions should be viewed as tentative and as reflecting our own experience about utilizing organizational change methods to effectively incorporate research-based practices into schools. However, given the strong empirical support for the many interventions we implemented, as well as the substantial decrease

in antisocial behavior within the school following interventions, there is little doubt that the interventions were effective, although the degree to which each intervention either separately or in combination led to students' behavioral improvements is uncertain.

Third, because lack of time has consistently been cited as a major impediment to school reform (Dawson, 2000), school psychologists may legitimately wonder how, given their busy schedules, they will have the time to coordinate and assist in the development of the research-based procedures described above. It should first be clearly understood that the implementation of interventions delineated in this article did not take place overnight; it took several years to have all the components in place. Furthermore, it is true that an initial and substantial investment in time and effort must be made for these procedures to work. However, it was our experience that the implementation of an effective schoolwide behavior support system led to substantial decreases in behavior problems exhibited by students and therefore to (1) less time needed to address individual student behavior problems and (2) greater time availability on the part of the school psychologist and others for developing and implementing effective classroom and individualized interventions. Indeed, it has been our experience that positive changes in students' behaviors as a result of schoolwide effective behavior support systems can occur quite rapidly. This exemplifies the "tipping point" phenomenon described by Gladwell (2002) and Dawson et al. (2003), which suggests the idea that "sudden, wholesale change" can occur even when "a small number of people decide to do something different" (Dawson et al., 2003, p. 507).

Finally, it should again be emphasized that research-based practices in schools are necessary but not likely to be implemented or sustained over time unless proper organizational structures are in place to support them. Promoting the utilization of research to solve problems in schools is critical, particularly given the limited impact research has historically had not only on practice in schools but also among the general public (Miller & Riley-Tillman, 2003), and because scientific evidence in education is so often ignored in favor of transient fads with little or no enduring value (Kauffman, 2002). It is equally important to recognize, however, that "the map can be a useful guide to the territory, but it is not the territory" (Tart, 1986, p. 295); that is, research alone can provide a roadmap to practice, but that is not equivalent to the way in which it is actually applied and experienced by those responsible for its implementation. Therefore, substantial attention and resources (e.g., time, training, etc.) must be given not only to using research for developing school-based interventions but also to organizational issues so that such practices can be successfully maintained and sustained over time. As noted by Walker and his colleagues (2004): "Unless an intervention is a good contextual fit—in the sense of being acceptable to teachers and students, being consistent with their values and beliefs, not requiring too much effort, being relatively unobtrusive, and holding the promise of effectiveness—it is likely to fail no matter how well designed it is" (p. 74).

Conclusions

Although the gap between research and practice presents significant challenges, it has been our experience that this gap can be bridged provided proper elements and supports are in place for implementing and sustaining effective practices. For teachers and other school-based professionals to be effective, their work should be based on well-designed, research-based programs (Grosenick, George, & George, 1990). Research-based interventions that do not lead to sustained behavioral change in both teachers and students, however, cannot be considered effective. New technologies require hospitable environments to thrive, and the addition of research-based interventions to unfavorable host environments is likely to lead to failure. The lessons learned at Centennial School may therefore prove useful for other schools that aspire to launch systemic change initiatives.

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