

The Effects of Mentors on the Classroom Behavior of Students With Emotional and Behavioral Disorders

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Abstract: *Mentoring is frequently discussed as a viable approach for improving the educational and social outcomes of students at risk for learning or behavioral problems. However, little data-based evidence beyond case study has been presented regarding the effectiveness of mentoring for students at risk. Here, 16 students with emotional/behavioral disorders (EBD) in two classrooms at an alternative day school were paired with undergraduate preservice teachers who served as mentors. Using PAND (Percentage of All Non-Overlapping Data), data indicate behavior change for 13 of the 16 students with improvement for 6 and a range of effects sizes. This data indicate that mentoring relationships with certain vulnerable populations (such as students at risk for or with EBD) may have mixed effects.*

Introduction

The professional literature has identified mentoring as an effective intervention for promoting positive social and academic outcomes for students with or “at risk” for emotional and behavioral disorders (EBD) (Aiello & Gatewood, 1989; Ference & Rhodes, 2002; Fishman, Stelk, & Clark, 1997; Haensly & Parsons, 1993; Segal, 1988; Weiss & Hechtman, 1993), and policymakers recommend mentoring as an effective practice (Bush, 2005). Specific examples include consistent school-related assistance from a mentor has resulted in children being more receptive to learning with (Fishman et al., 1997) and making positive educational progress (Gray, 1989; Vance, Fernandez, & Biber, 1998). Further, mentoring has been found to attribute to transition success (Hagner, Cheney & Malloy, 1999; Powers, Sowers, & Stevens, 1995) and programs that provide adult mentors for high-risk youth have reportedly led to an increase in school attendance and performance (Tierney, Grossman, & Rech, 1995) and provided assistance to teen mothers (Hume, 2002).

Interestingly, although mentors are frequently mentioned as “proven to be a practical solution for students with academic and behavior problems” (Campbell-Whatley, 2001, p. 211) or “helpful interventions include the use of mentors” (Tobin, Sugai, & Colvin, 1996, p. 82) and that mentoring “programs (with EBD) students can yield unmatched and innumerable benefits” (Burrell, Wood, Pikes, & Holliday, 2001, p. 28), few empirical validations are available on the effects of mentors (Brodkin & Coleman, 1996; Brooks, 1994; Haensley & Parsons, 1993; Powers et al., 1995). Research

on mentoring processes indicates that additional training on structured activities and importance is generally needed (Andrews & Quinn, 2005). Further, online mentoring programs for at-risk youth have also been published, but no empirical data on social or academic behaviors were reported (Lesene, Buckman, Caves, & Day, 1997).

All program evaluation is complex, and outcomes for social constructs such as personal efficacy are particularly difficult or impossible to measure. Two models have been proposed for evaluating mentoring programs: (a) process and (b) product or impact (John D. & Catherine T. MacArthur Foundation, 1992). The impact of any program should determine its efficacy and contribute to adoption decisions. Therefore, in the case of mentoring, the most effective methods for evaluating efficacy would be direct and systematic observation.

The purpose of this study was to examine the effects of mentors on the daily classroom social and academic behaviors of students with emotional and behavioral disorders as measured by continuous data on nine specific behaviors. The behaviors (talking out, out of seat, off task, cussing, arguing, noncompliance, physical aggression, sleeping, and put-downs) were selected by participating teachers and administrators as the most frequently occurring and most troublesome disruptions to instruction.

The conceptual model for designing the mentoring intervention combined the components of effective programs (Campbell-Whatley, 2001) with the resiliency-fostering strategies set forth by Brooks (1994). Accessing students daily through e-mail was added as a feature supported by previous research

to increase academic performance (Lesene et al., 1997). This also allowed for greater frequency of contact between mentors and protégés and an increase in the weekly duration of contact from 2 hours to more than 3 hours (1-3 hours is recommended as sufficient contact time) (Campbell-Whatley, 2001).

An issue critical to the adoption of many mentoring programs is difficult and complex administrative logistics (Haensly & Parsons, 1993). Finding and pairing mentors and protégés is time-consuming and resource intensive. In the current study, we elected to use preservice teachers as mentors for a number of reasons. First, preservice teachers already have some background in curriculum and instruction as well as an identified interest in working in educational settings with children. Second, mentoring is mutually beneficial for these mentors and protégés, because the mentors receive a much needed, highly desired experience as preservice teachers and the protégés receive 1:1 time and attention. This mutual benefit is a recommended aspect of an effective mentoring relationship (Haensly & Parsons, 1993). And third, mentoring enables the preservice teacher to gain experience in working individually with a student with a disability in a context that is free from the pressures of student teaching or first-year teaching.

Method

Participants

Student protégés. Twenty-seven children with emotional/behavior disorders in grades 4-8 who received educational services in an alternative day school were nominated to participate in the study. The students had been referred from their local school campus after unsuccessful, on-campus, pre-referral interventions. After observations and subsequent team evaluations, students were placed at Building Bridges (all prior to the onset of this study), an alternative school for students who have educational diagnoses of EBD and have experienced repeated negative contacts with the juvenile justice system and school administration, and have histories of family service interventions.

Of the original sample of 27, 16 students, or protégés, completed the study. All students, 4 girls and 12 boys, were Caucasian. Reasons for exclusion of participants included incarceration, absences of more than 20%, school transfer, or a change in parental or student consent to participate.

Mentors. The 27 preservice teachers who served as mentors were enrolled in the Psychology and Education of the Exceptional Child Course at Missouri Western State University in the spring of 2001. Missouri Western State is a primarily regional, open admissions, undergraduate campus of approximately 5,000 undergraduates. Preservice teachers used the 24-hour college computer lab. This lab was equipped with staff for technical assistance, online technical support, and e-mail accounts.

Setting

Building Bridges is a K-12 Alternative Education Center for students with disabilities and severe behavior problems. The school is located on the third floor of a psychiatric hospital. On the first floor is a short-term management facility for any children needing short-term academic and social skills remediation and, therefore, is not exclusive to students with Individual Education Plans. The second floor houses

a residential unit for children in addition to educational classrooms and offices. Interspersed on floors one, two, and three are additional offices and meeting rooms for psychiatrists, psychologists, counselors, and social workers. The building has an indoor gymnasium and a cafeteria. The outdoor facilities include playground equipment and a small lawn area for recreation activities.

All one-on-one mentoring occurred in the classrooms, hallways, gymnasium, or cafeteria under the supervision of the special education classroom teachers and administrators. Two distinct classrooms were involved, one upper elementary and one middle school. Each room had one classroom teacher and one full-time instructional assistant.

The online mentoring for each student occurred in a small office area of a computer lab. The computer lab was available on demand to students but only with supervision. The lab had one computer with Internet connection. The lab was on the same floor as the classrooms, approximately 20-50 feet from each instructional area.

Procedures

Effective mentoring programs has been found to be characterized by the following essential components: the involvement of personnel who have complementary contact, program coordination with delineated goals and objectives, a target population, specified activities, procedures, training or orientation for mentors and students, quality characteristics of mentors, monitoring, and evaluation (Campbell-Whatley, Algozzine, & Obiakor 1997; Preyer, 1990). For purposes of clarity for the reader, procedures and fidelity of implementation are discussed by each of these essential components.

Complementary contact and target population. All students identified with EBD in two classrooms (upper elementary and middle school) were assigned mentors. Two students with EBD requested a switch after the orientation based on "interests." These requests were immediately accommodated.

Training and characteristics of mentors. Prior to participation in the study, the preservice teachers received training consisting of reading selections from textbooks and journals, lectures, and lesson planning assignments. To qualify for participation in the study, preservice teachers were required to pass an exam on the characteristics of children with EBD and effective instructional techniques for this student population with 90% or better accuracy.

All mentors had a GPA of at least 2.5 and had earned at least a "C" in all college coursework in an education major. Mentors also had letters of recommendation from their department chair. In addition, each mentor had passed a criminal background check and had signed a declaration of moral character. Finally, each mentor submitted their personal philosophy of teaching, which included belief statements regarding their commitment to teaching individuals with disabilities.

Participation for preservice teachers (mentors) was a voluntary choice component of the undergraduate class requirements; successful completion earned a grade worth one third of the total course points. Protégé (students with EBD) participation was also voluntary. Students were reinforced for participation with access to the computer for online correspondence; special meal service on Fridays (such as pizza delivery); and participation in mural painting, basketball games, and other recreational activities.

Specified activities and procedures. Mentors e-mailed their protégés daily and met with them weekly Monday through Friday beginning in January and ending in May (one academic semester of 15 weeks). Topics for e-mail and the one-on-one sessions were one of five protective factors for increasing resilience in students at risk: encouragement and positive feedback, self-discipline, dealing with mistakes and failure, enhancing decision-making skills, and encouraging student contributions (Brooks, 1994). Daily e-mail exchanges ranged from one e-mail and one response to five e-mails and five responses per day. Mentors spent two hours of one-on-one time with their protégés each Friday for three weeks. Mentors recorded the frequency of occurrence resiliency topics in both e-mail and individual sessions through the use of a clipboard and data recording sheet.

The two-hour sessions were held during school hours under the supervision of the assigned classroom teacher. Mentors and their protégés met in a quiet area of the school cafeteria, hallway, or a classroom to talk about their lives, their goals, and how to improve in school to the extent that they could return to their “home campus.” Because of the characteristics of the behavior of students with EBD (e.g., violence, hallucinations), the college course instructor and the building principal floated from room to room and were available to help in case of an emergency.

Mentor-protégé relationships were restricted to in-school contact. The personal contact involved academic assistance with the regularly scheduled lessons of the classroom teacher and recreational activities such as basketball, mural painting on civil rights, and reading stories or journals. In some cases, conversations were also selected by participants as the activity of choice.

Discussions were varied based on the individual participants, but overall they were comprised of issues related to schoolwork, families, drug use, incarceration of self and others, and relationships with peers and teachers. Mentors and protégés were advised that issues related to criminal activity or reports of abuse would be responded to with appropriate authorities within 24 hours. No reports of incidence of criminal activity or abuse were made or received.

Incoming and outgoing e-mail was checked each day (100% of all occurrences) by a trained data collector or the classroom teacher for reliability of frequency data on resiliency topics. If a protégé was absent, suspended, or refused to participate, the data collector or classroom teacher would record an X in the “received” designation area on the data sheet and would notify the appropriate mentor that the student was either absent, suspended, or refused to participate on that day. Mentors were instructed to e-mail daily regardless of responses from students. If students were absent, suspended, or refused to participate on one day, they would receive two e-mails when next participating.

Training and orientation for mentors and student protégés. The first session was a “get to know you” pizza party orientation where participants were introduced to each other first as a large group and then as mentor-protégé pairs. Participants sat next to each other and visited informally about individual goals and needs. A large-group discussion was then facilitated by the school director to review the purpose of the project in the context of the goals and expectations of the students with behavior disorders. Mentors were matched with protégés based on preference requests of protégés with regard to gender in all cases, and interests when possible.

Monitoring and evaluation. Biweekly meetings were held with the principal investigator and the school administrator. In addition, the principal investigator made daily phone or personal contact with all data collectors and each of the 27 mentors to monitor progress and provide feedback. Evaluation of data was both formative and summative.

Data Collection

Nine subsets of classroom behavior and total behavior were measured continuously in six-hour intervals per school day. All school locations, including classrooms, hallways, gym, and cafeterias, were observed. Data were collected by classroom teachers, instructional assistants, and data collectors. Instruction time and conditions, as well as recreation opportunities, were held constant to maintain consistency for controlled operants. Reliability was scheduled to be measured a minimum of 20% of days by the data collectors.

Fidelity-of-implementation data were collected on mentoring behavior, including topics of conversation and attendance or e-mail participation. Mentors recorded their own e-mail as sent and received. The data collector or classroom teacher printed, coded, and recorded all e-mail for the protégés and mentors as sent and received, absent, suspended, or refused. Reliability was coded as agreement or disagreement and calculated randomly on 20% of days.

Independent Variable

The independent variable was mentoring as defined by weekly two-hour visits at the school for one-on-one personal contact and daily e-mail exchanges between mentors and their protégé on one of the five topics identified as increasing resiliency in youth (Brooks, 1994). The personal contact involved academic assistance with the regularly scheduled lessons as assigned by the classroom teacher and recreational activities such as basketball, mural painting, and reading.

Dependent Variables

The dependent variables were nine individual behaviors identified as “inappropriate classroom behavior” by the teachers and administrators at Building Bridges Alternative School (Table 1). Behaviors were selected by teachers and administrators participating in the study as occurring frequently and causing instructional interference. Faculty, instructional assistants, and administrators created operational definitions of the behaviors

Experimental Design

A single-subject reversal design (Kazdin, 1982) was used to visually evaluate the effects of mentoring on total inappropriate behaviors and provide feedback and daily, formative information to the research team. Single-case design is characterized by repeated and direct measurement, carefully delineated and controlled conditions, and systematic introduction and removal of interventions (Kazdin, 1982; Sidman, 1960). Repeated observations of performance over time are required to examine the effects of the intervention. If the behavior(s) of interest change in relation to the introduction or removal of the independent variable, a functional relationship may be inferred. The degree of inference is directly related to the magnitude

Table 1

Definitions of Behaviors Recorded in Classrooms by Teachers

Behaviors	Definitions
Talking out	During direct instruction student speaks without permission. During group academic activities student speaks out of turn or on nonrelated topic.
Out of seat	During direct instruction and group academic activities, student's bottom leaves chair seat and feet are out from under desk.
Off task	During instruction student is looking at stimulus other than teacher, blackboard, media, worksheet, or materials.
Not following directions/ Noncompliance	When presented with a direction from teacher, administrator, or instructional assistant, student responds in a manner inconsistent with compliance.
Sleeping	Student head on desk, eyes closed. Student head back in chair, eyes closed for more than 30 seconds.
Physical aggression	Student response involving bodily contact with person or property that indicates malice or frustration.
Cussing	Student uses generally unacceptable language or slang.
Arguing with staff	Student responding to staff directions with verbal noncompliance as a function of maintaining verbal engagement.
Put-downs	Student use of language with intent to disrespect.

of the change, the consistency of the data, and the number of times the effect is demonstrated. Analysis of single case research (SCR) is typically visual inspection, but multiple statistical measures of effect are available to supplement SCR design and analysis.

Analysis

Single case effects of the intervention can be established visually if performance under the intervention condition differs from the projection of the baseline condition (Kazdin, 1982). However, visual interpretation is difficult and limited in instances of highly variable data. Highly variable data is typically seen for students with emotional and behavioral disorders thus rendering visual analysis alone insufficient as a measure of magnitude of effect. Magnitude-of-effect measures through percentage improvement rates are therefore included in this analysis, as is widely recommended in social science literature (Cohen, 1990; Kupersmid, 1988; Rosnow & Rosenthal, 1989).

The data were analyzed with a nonparametric technique for nominal data, which sidesteps the assumptions of equal variance and normality required of parametric and some nonparametric analyses. The table-based Pearson's Phi, was calculated from data nonoverlap between the intervention phase on the one hand, and

baseline and return-to-baseline phases on the other. The analysis is based on nonoverlapping data (Parker, Hagan-Burke, & Vannest, 2007). The Phi is always based on a balanced 2x2 table of data overlap vs. nonoverlap so that it can be interpreted directly as the difference between two improvement rates or success rates (Parker, Vannest, & Brown, in press). Phi is calculated as the square root of Chi-square, divided by N (Cohen, 1988 a). Chi-square is given as direct output from crosstabulation of a 2x2 table. N is the total number of datapoints in the table.

Reasons for using Pearson's Phi include: Phi makes minimal data assumptions, Phi has a strong relationship to clinical outcomes and the concept of percentage of non-overlapping data (.98 correlation), and Phi provides easily interpretable results (Parker et al., 2007; Parker et al., in press). Phi can also agree with parametric results at .90 correlations (Parker et al., in press). Phi is a Pearson R for 2x2 tables and does not require even ordinal data assumptions nor is its distribution shape a concern. (Parker et al., in press; Cohen, 1988b).

Interpretation of Pearson's Phi represents the percent increase in improvement or success rates for the intervention phase scores over the baseline phase scores. The calculation procedure for obtaining Phi was performed in accordance with Parker et al. (in press).

Results

Reliability

Reliability data on the independent variables were collected across all 16 subjects. Reliability observations occurred during 31.5 % of the sessions. The percentages of actual agreement were calculated by a point-by-point agreement method. The mean percentage of agreement on participant inappropriate behaviors was 87.0 %. The percentages of agreement ranged from 66.7 % to 100 %.

Academic and Social Behavior Improvement

Of the 27 participants who began the study, 16 students remained in the study long enough to collect data for a baseline (A) and intervention (B) phases. Of these 16 students, 14 had data in phases of baseline, intervention, and return to baseline (ABA or withdrawal of treatment). Examination of the data for the 16 students across all nine subsets of behavior resulted in 160 graphs of results for visual of means, phase changes, and trend lines (these are available by request from the first author). For the purposes of this paper, a statistical summary table rather than a series of visual analysis graphs depict results for 16 students' total behaviors.

The data were statistically analyzed using Pearson's Phi. Values should be interpreted as an increase in success rate or improvement rate from baseline to intervention phases, and as such are effect sizes with a direct, practical meaning. Thus, as calculated from the 2x2 table, Phi is more readily interpreted than Cohen's d (mean difference in standard deviation units) or Pearson R2 (percent of variance accounted for). Regarding the use of metrics or guidelines, we will follow the advice of Cohen who gave "invitations not to employ them if possible" (Cohen, 1988a pg. 532 as cited in Thompson, 2006 p. 199) and instead will discuss the range of behavior change based on the more readily understood percentage of improvement that is Phi.

Based on calculations, of the nonoverlap between intervention, baseline, and return to baseline, an overall effect of a 14 % change in behavior was demonstrated across all 16 students. Percentage of change ranged from 0 % to .75 % for each student (Table 2). Behavior changes occurred in both positive and negative directions. With some student's behavior improving (fewer maladaptive behaviors) and some students behavior deteriorating (more maladaptive behaviors).

Students fit in one of three ranges of behavior change as we have determined them for these results as a study of new and "uncharted territory" with no similar ES of online coupled with in-person mentoring studies to compare to for context. Instead, we will discuss the data in relationship to the context of behavior change for students identified as emotionally or behaviorally disordered, educationally placed, and served in a day treatment center. We found three types of effect for the online and in-person mentoring: zero change, improvement, and degradation (Table 3). Our results will be discussed within the context of the related research as recommended by Thompson (2006).

Zero change. The data demonstrated that zero behavior change occurred for 3 students in our sample of 16. Online and in-person mentoring did not demonstrate positive improvement in the total behaviors for 19 % of our students. These students' rates of behavior had medians of 8-16 occurrences of maladaptive behavior a day and under the condition of mentoring had median occurrences of maladaptive behavior from 7-18.5. The percentage of change for these three students was zero.

Table 2

Percentage Change of Behavior by Size

Students	PHI	P
Gene	.746	.002
Lisa	.63	.003
Ben	.352	.12
Cole	.35	.07
Richard	.314	.27
Jaime	.27	.2
Denise	.266	.21
John	.238	.25
Erica	.238	.25
Tufan	.214	.31
Jorge	.212	.34
Jack	.145	.51
Fisher	.066	.78
Sulleyman	.	1
Mack	.	1
Tiffani	.	1
Overall	.136	.014

Improvements. The data for 6 students or 37.5 % of our sample demonstrated a positive change in behavior that ranged from .07-.27 % (Phi). For these 6 students changes in behavior ranged from a 7 % improvement to a 27 % improvement. Four students had behavior improvements over 20 %. This is a fairly substantive change in behavior frequency for teachers in the classroom and demonstrates a marked effect. For these 6 students, online and in-person mentoring demonstrated small to substantial changes across 9 social and academic behaviors as measured by their frequency of occurrence in the classroom. Visual analyst rated graphs with Phi values of .43 and below as representing small to negligible effects. Values of .43 to .76 were rated as medium size effects and higher Phi values were rated as large effects in a study of 166 published data sets. (Parker et al., in press)

Degradation. Seven student's data yielded Phi that ranged from .21 to .75, a degree of change that represented a worsening of overall maladaptive behaviors. These seven students demonstrated fairly substantial degradation in behavior under the condition of mentoring.

Table 3

Median Frequency of Behavior Changes Across Phases (Baseline and Intervention)

Students	Phase A	Phase B	PHI	Behavior Change
Deteriorated Scores				
Gene	0	24	.746	-.75
Lisa	4.5	18	.63	-.63
Ben	7	29.5	.352	-.35
Cole	4	7	.35	-.35
Richard	1	2	.314	-.31
Denise	1	2	.266	-.27
Tufan	37	53	.214	-.21
No Change Scores				
Sulleyman	16	18.5	.	0
Mack	8	9	.	0
Tiffani	8	7	.	0
Improved Scores				
Jaime	5	8	.27	+.27
John	8	3	.238	+.24
Erica	23	15	.238	+.24
Jorge	4	3	.212	+.21
Jack	18.5	13.5	.145	+.15
Fisher	27	20	.066	+.07

Notes: Percentage Change reflects a 2 digit rounded value of Phi as an effect size calculation with a + or - to reflect the improvement or deterioration in performance based on the visual graph of the data trend.

Discussion

The data from 16 students with EBD yielded three types of effects for an online and in-person mentoring intervention based on the effective mentor program literature and resiliency characteristics: zero change, improvement, and degradation. These three types of effect were determined by the measure of Phi in combination with visual analysis of differences in means, medians, trends, and intercept gaps for each participant. Zero change was characteristic of 3 of the 16 participants who completed the study. Improvement was evidenced for 6 of the 16 students, and degradation was seen for 7 of the 16 students. These three types of effects might be explained in one of several ways.

We examined the effects of online and in-person mentoring systematically across all students in two classrooms. Of the 27 students, 16 completed the study (typical for this population) due to suspensions, absences, change of educational placements, incarcerations, and one parent refusal for a child in a contested court removal. As such, the protégés were selected based on their classroom placement and diagnosis rather than the high rates of stable behavior that one might typically see in a small SCR study of 2 or 3 subjects. This is a strength and an addition to the literature to see how mentoring (online mentoring in this case) affected student behavior across many types of students. Mentoring programs are frequently adopted in this systemic way by identifying “students” identified or at risk for EBD and “applying” mentoring programs broadly as an appropriate intervention regardless of type of internalizing or externalizing problems or rates or variability of maladaptive behavior. This discussion provides further elaboration on the results by categorizing effects by type of student behaviors and responding patterns to better understand the range of effects empirically on students in classrooms.

High variability performers. Three students demonstrated zero percentage of improvement in the total frequency of behaviors measured. Students of this typology may demonstrate improvement that is difficult to measure because of the fluctuation in both externalizing and internalizing behaviors. These students had behavior that ranged from 0 to 40 occurrences of problem behavior each day and demonstrated tremendous variability in performances. These fluctuations may be related to setting events that would not be impacted by e-mail or weekly time with a mentor. For such students, a more proactive use of mentors as a morning check-in where e-mail or personal contact with their mentor could be made on demand might be a better approach to dealing with problem behavior in the classroom. The data reflects our need to understand and empirically identify the characteristics of mentoring that make for a successful intervention. Mentoring may be best constructed as choice for the student rather than a treatment to be dispensed by school officials.

Low rates of behavior. A second type of student had very low rates of disruptive or off-task behaviors and thus a floor effect was evident. For example, students with a median baseline of 0 or 1 and a mean baseline score of 1.18, 1.57, or 2.5 of maladaptive behaviors per day, did not demonstrate high rates maladaptive behavior in class either internalizing or externalizing. Frequency counts may not be a sensitive enough measure to detect any positive effect of mentoring.

These types of students did not demonstrate a positive change in behaviors but there was little room for this change. Instead, their maladaptive behavior slightly increased for three and greatly increased

for one. One student’s behavior escalated at an increasing rate, reaching more than 160 events per day from a baseline median of 0. This may have been a result of changing a structured program that was previously functional. The addition of a new person, new routine, or new performance expectation with opportunities for disruption (e.g., walking down a hall, social interaction) may be the root of the increase in behaviors.

For students who are maintaining appropriate behaviors in classroom settings, mentoring might serve as a challenge to maintaining their equilibrium. The excitement and performance expectations introduced because they are “good” might serve to derail their behavior by introducing additional attention and stimulation into an already supportive, structured, and calming environment. For these types of students, school awareness that the introduction of mentors may require some resettling time or that students may need to be given ample opportunity for the adjustment that comes with learning a new routine, becoming familiar with new people, and dealing with the expectations and presence of another individual. To children who have been identified or are at risk of emotional and behavioral disorders, the introduction of a new person may be disruptive more than it may be of benefit.

Thus, for the group of students with the lowest rates of behavior, mentoring as a treatment arrangement was not just ineffective; it was detrimental. A population of students with behaviors severe enough to warrant a separate educational campus may be so negatively impacted by a change in routine and the presence of new and temporary individuals in their lives that transition time is not enough or the benefits not substantial enough to warrant this type of intervention. Also, the nature of the activities may have increased the demands on already overwhelmed children. Great caution should be demonstrated when developing and implementing mentoring programs that for some students should be explicitly optional. Students who are categorized at levels of such high risk may be best served by maintaining programs that work and only gradually introducing new elements.

Responsive students. Improvement was evident for 6 of the 16 participants with improvements that ranged from a .07 to .27. These 6 students were most responsive to mentoring and shared some similarities. Means and medians for all 6 students ranged from around 5 to 30 in baseline. The behavioral topography of the students who had moderate rates of behavior in baseline included some degree of stability (i.e., 5 of the 6 had only 1 or 2 days of high variability in their behavior) thus most performed, although not predictably, within a smaller range of variability. All 6 had immediate phase change decreases in maladaptive behavior and improvements in mean, median, and/or trend were evident for all 6. The range of a 7-27% improvement rate for these 6 students indicates that our responsive students tend to be characterized as relatively stable performers (compared to the group) and experienced immediate effects of the mentors.

This may be the type of student most suited for mentoring as a treatment for maladaptive classroom behavior. Mentoring served to decrease maladaptive behavior for 6 students and to decrease it to the degree that teachers would see and appreciate the change (4 students demonstrated change over 20%, 1 at 14%, 1 at 7%). The addition of a new caring adult increased the quality of their school

performance and did not serve to disrupt their educational experience. Rates of behavior for these 6 students sometimes reached 116 occurrences of maladaptive behavior a day so these were not low responders. The variability of performance was limited for the most part to fewer than 20% of days. Students with generally moderate rates of maladaptive behavior (moderate for this setting) and with some degree of stability in behavior responded positively, and to a reasonable degree, to mentoring.

This is reflective of the general nature of development of responsive treatment for students with challenging behavior; that is, no one intervention works for all kids at all times. Our most responsive group tended to be differently characterized from our zero change responders and our responders whose behavior degraded.

Limitations

Time. Although an ideal or recommended length, frequency, and duration of time spent between protégés and mentors has not been substantiated in the literature, this may have been a factor in the present study. Thus, it is a limitation that the intervention was intensive in contact on Fridays only, with lesser contact Monday–Thursday. However, as most after-school mentoring programs demonstrate only a few hours per week, this study was in line with the amount of time expended in other studies.

Participants. Some researchers have issued cautions about establishing mentor relationships with students characterized as having academic and learning problems of a more severe nature, such as those that result in suspension or expulsion (Fehr, 1993). It is possible that the students in the current study exhibited behavior so chronic that developing a mentor-protégé relationship would not translate into improved daily classroom behavior.

Attrition. Twenty-seven students were recruited to this study from two classrooms. This inclusion of all students for participation led to high attrition rate with 16 completers of the 27 students initially recruited. However, in a population so “at risk” for negative social contacts such as juvenile delinquency, crime, school failure, dropout, and incarceration, the completion of 16 students in our study makes this a relatively large sample of students with EBD compared to others where the average number of students (with EBD) in studies measuring academic variables is 6 (Vannest, Temple-Harvey, & Bruhl, 2005). Attrition is always a limitation in its threat to the generalization of results.

Measurement issues in the quality of relationships. We did not attempt to measure or judge the quality of the interactions between mentor and protégé, but instead selected units of time and components of interactions as observable and measurable data. These do not directly translate to information about the quality of a relationship. Levinson (1978), Galvez-Hjornevik (1986) and Schein (1978) all mention the relationship aspect of mentoring as a deep and meaningful association. Gehrke (1988) discusses the origin of the word *mentor* from Homer’s *Odyssey* and the role as a loyal friend and wise counselor to cultivate wisdom rather than rebellion. Although we measured “rebellion” as a behavioral construct of sorts, we did not measure wisdom.

Conclusion

The theoretical underpinnings of this study come from two sources: (a) the protective factors associated with successful outcomes for students with EBD and (b) the components of mentoring programs as detailed in the literature. However, the social acceptance of mentoring programs should not substitute for empirical evidence to support their use.

An intuitive value of mentoring programs makes them socially acceptable to schools and teachers. Thus, most self-report data indicate a belief in the effectiveness of mentoring and participants in comparable studies cite they value mentoring (Lane & Canosa, 1995; Quinn & Andrews, 2004). All preservice teachers and students in this study reported strong changes in classroom behavior when asked. Students reported especially that they enjoyed the mentors and that the project helped them to achieve their goals. However, the data would suggest that their disruptive classroom behavior and academic achievement did not change.

The empirical data on the effectiveness of mentoring as described here may be attributed to one of two possibilities. First, the data may be accurate and suggest that mentoring has weak effects on changing the classroom behavior of students with EBD in an alternative school. A second possibility is that the data demonstrate an inability to implement mentoring effectively under the conditions of this study. Regardless, the authors recommend interpreting these results with caution as one piece of the complex puzzle on the nature of human interactions such as a mentoring relationship. However, these results are in line with newer evidence that has appeared since this study originated, also cautioning that the effects of mentoring on some children may be detrimental (Roberts, Liabo, Lucas, DuBois, & Sheldon, 2004) and that termination of mentoring relationships can cause decrements in functioning for adolescents (Grossman & Rhodes, 2002).

It is reasonable to suggest that mentoring has positive effects on students in at-risk populations (Tully, 2004) or with developmental disabilities, or students who experience transient school adjustment problems, but is not strongly correlated with positive changes in classroom behavior for students with severe EBD.

We believe strongly that students with severe learning and behavior challenges such as those educationally diagnosed as EBD need efficient and empirically validated interventions to prevent and remediate social and academic behavior problems. More research is needed to examine the as yet unproven efficacy of using mentors with this population, despite its widespread social acceptance. Specific areas of research include empirical justification of mentoring interventions with the EBD population and, if established, the comparative efficacy of such programs with other schoolwide and individual interventions. Future studies might also address the limitations described in the present study such as length of time and methods for defining and measuring a construct such as a mentoring relationship or the behaviors that might be impacted. In conclusion, in an era of school accountability and evidence-based practices, the use of mentors should be closely evaluated prior to adoption.

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