

School-Based Interventions for AD/HD

by Sam Goldstein, PhD

IN THE PAST TWO DECADES, AD/HD has become a widely used term in schools to identify students presenting as inattentive, hyperactive, and impulsive. There has also been a groundswell of literature directed toward educators on school-based interventions. Some of these interventions are based on defined, data-driven, and well-implemented programs. Far more, however, fall under the general umbrella of “good ideas” absent scientific support.

Since AD/HD affects behavior and school performance, student success has likely held different meanings for different educational systems. For some, success for students with AD/HD may mean reduced restlessness and fewer classroom disruptions. For others, it may be more important that assignments are completed, peer relations are improved, and self-esteem is enhanced.

The responsibility for the integrity and implementation of these programs falls on classroom teachers, as the late Clare Jones, PhD, noted nearly twenty years ago. Teachers serve as environmental engineers working to create an environment for student success by providing students the opportunity to participate socially, academically, and emotionally in functional

ways in the classroom. This column provides an overview of a number of relevant studies from among the increasing number of published studies that focus on interventions and classroom support for students with AD/HD.

► **Barbarese, W.J. & Olsen, R.D. (1998). An ADHD educational intervention for elementary school teachers: A pilot study. *Developmental and Behavioral Pediatrics, 19(2), 94-100.***

These pediatricians assessed the effect of inservice training on the knowledge and stress of elementary school teachers related to AD/HD. Pre- and post-intervention questionnaires assessed teachers' training and knowledge concerning AD/HD, teacher stress, and teacher-rated student behavior. The intervention



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was an AD/HD curriculum developed by CHADD. Teacher stress correlated with AD/HD behavior in male students and decreased post-intervention. Of the interesting findings, there was a dramatic decrease in teacher misperceptions, including beliefs that AD/HD is caused by poor parenting and food additives and that medication intervention should be used only as a last resort.

► **Creel, C., Fore, C., Boon, R.T., & Bender, W.N. (2006). Effects of self-monitoring of classroom preparedness skills of middle school students with ADHD. *Learning Disabilities: A Multi-Disciplinary Journal*, 14(2), 105-113.**

This study sought to examine the effects of a self-monitoring procedure to increase classroom-preparedness skills of four sixth-grade students with AD/HD. A multiple baseline procedure was used across participants to evaluate the effectiveness of the intervention. The baseline intervention and maintenance data were gathered in a language arts resource classroom. Social validity was obtained by having a regular education teacher complete rating scales before and after the study. Students in the study also completed post-intervention surveys to further assess social validity. After the intervention, maintenance data were collected. Results demonstrated that the self-monitoring intervention increased classroom-preparedness skills for all four students. These skills were maintained even without the continued use of self-monitoring checklists, as demonstrated by the maintenance data. This study extends previous research demonstrating the effectiveness of self-monitoring as an intervention for students with disabilities.

► **Evans, S.W., Serpell, Z.N., Schultz, B.K., & Pastor, D.A. (2007). Cumulative benefits of secondary school based treatment of students with ADHD. *School Psychology Review*, 36(2), 256-273.**

This study reports the results of a three-year treatment outcome of a school-based training and consultation program for youth with AD/HD in middle school. Social and academic outcomes for program recipients were compared to that of participants in a community-care control group. Findings suggested cumulative long-term benefits for the treatment group as measured by parent ratings of AD/HD symptoms and observations of social functioning. Although teacher and parent reports indicated no cumulative academic benefits, within-year analyses suggested a trend toward benefits in students' grade point average. The authors suggest that although some of their analyses did not reach the threshold of statistical significance, the pattern of effect sizes across the primary outcome variables presents persuasive evidence of a cumulative long-term benefit for young adolescents with AD/HD receiving the school-based teacher consultation and a training model. The authors also reported that, in general, the first grading period of the year was the best for all participants. Group differences occurred in the second semester for both sixth- and eighth-grade participants, with treatment participants improving and their control counterparts declining.

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What Have We Learned?

- Providing knowledge, inservice training, and support to educators is effective in helping students with AD/HD.
- Students with AD/HD can be taught to self-monitor their work and behavior, leading to improved classroom functioning and performance.
- School-based training and consultation programs for middle and secondary students with AD/HD are effective, though benefits may decline quickly without continued support.
- Dosages of medications used to treat AD/HD can be reduced when paired with effective behavior-modification strategies.
- Developing executive skills such as organizational training improves the academic performance of students with AD/HD.
- Computer-assisted instruction can be an effective method of providing support for youth with AD/HD in general education classrooms.
- Peers can be effective tutors and coaches for students with AD/HD, helping them not only to improve their academic performance but also to develop better social relations.
- Behavioral and cognitive training programs for students with AD/HD are effective in improving school performance and grades, even when influences such as IQ are taken into account.

► **Fabiano, G.A., Pelham, W.E., Gnagy, E.M., Burrows-MacLean, L., Coles, E.K., Chacko, A., Wymbs, B.T., Walker, K.S., Arnold, F., Garefino, A., Keenan, J.K., Onyango, A.N., Hoffman, M.T., Massetti, G.M., & Robb, J. (2007). The single and combined effects of multiple intensities of behavior modification and methylphenidate for children with Attention Deficit Hyperactivity Disorder in a classroom setting. *School Psychology Review*, 36(2), 195-216.**

Using a within-subject design, this study investigated the single effects of behavior modification (none, low, and high intensity), methylphenidate (placebo, 0.15, 0.30 and 0.60 mg/kg) and the combination of these treatments in a classroom setting with 48 six- to twelve-year-old children diagnosed with AD/HD. Results found substantial effects of both unimodal treatments and their combination on measures of classroom behavior, academic productivity, and teacher ratings of behavioral functioning. The authors suggest that their results provide support for the premise that the overall need for medication and the dose needed for effectiveness to treat AD/HD can be reduced by working with teachers to institute simple behavioral interventions.

► **Gureasko-Moore, S., DuPaul, G.J., & White, G.P. (2007). Self-management of classroom preparedness and homework: Effects on school functioning of adolescents with ADHD. *School Psychology Review*, 36(4), 647-664.**

Two multiple baseline across participants designs were applied to evaluate the effects of self-management procedures to enhance classroom-preparation skills and homework-completion behaviors of middle-school students with AD/HD. Six male students with

AD/HD enrolled in a public middle school received training in self-management procedures focusing on improvement of classroom preparation and homework completion. Only two of the six were receiving psychiatric medication for AD/HD. Classroom-preparation skills and homework completion increased as a function of self-monitoring. Improvements were maintained after written self-monitoring was faded. The authors note that this study adds to the increasing body of evidence demonstrating that self-management techniques, when appropriately taught, monitored, and generalized, are clinically effective for youth with AD/HD, with or without accompanying medication.

► **Langberg, J.M., Epstein, J.N., Urbanowicz, C.M., Simon, J.O., & Graham, A.J. (2008). Efficacy of an organization skills intervention to improve the academic functioning of students with ADHD. *School Psychology Quarterly, 23*(3), 407-417.**

This pilot study examined the efficacy of an eight-week organizational skills intervention for children with AD/HD. Thirty-seven children were randomly assigned to receive the intervention, which included organization and homework-management strategies delivered as part of a two-day-per-week after-school program. Each child received 75 minutes of intervention each program day. The program was staffed by university undergraduate psychology students, with a 3:1 ratio of students to trainers. All children received 20 minutes of individual intervention time and 55 minutes of group intervention each program day. Participants made significant improvements in organization and homework-management skills during the intervention. These gains were maintained at the eight-week follow-up. Parents of children in the intervention group reported decreased homework problems. Children in the intervention group also demonstrated pre-post improvement on teacher ratings of academic impairment and grades. This study suggests that well-organized, targeted academic skills programs do in fact improve overall academic performance in youth with AD/HD.

► **Mautone, J.A., DuPaul, G.J., & Jitendra, A.K. (2005). The effects of computer-assisted instruction on the mathematics performance and classroom behavior of children with ADHD. *Journal of Attention Disorders, 9*(1), 301-312.**

These authors examined the effects of com-

puter-assisted instruction on the mathematics performance and classroom behavior of three second- through fourth-grade students with AD/HD. Participants' mathematics achievement improved and their on-task behavior increased during the computer-assisted sessions, relative to independent seatwork conditions. In addition, students and teachers considered this intervention to be an acceptable strategy for students with AD/HD experiencing math problems. The authors suggest that their results provide support for the use of such programs to teach mathematics to elementary school children with AD/HD in general education classrooms.

► **Pfiffner, L.J., Mikami, A.Y., Huang-Pollock, C., Easterlin, B., Zalecki, C., & McBurnett, K. (2007). A randomized, controlled trial of integrated home-school behavioral treatment for ADHD, Predominantly Inattentive Type. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*(8), 1041-1050.**

Sixty-nine children between the ages of seven and eleven years with diagnoses of AD/HD-Inattentive Type were randomized to the Child Life and Attention Skills Program and a control group that did not receive the intervention. Groups were compared post-treatment at three and five months based on parent and teacher ratings of inattention, sluggish cognitive tempo, and functional impairment. Children randomized to the Child Life and Attention Skills Program were reported to have significantly fewer inattentive and sluggish cognitive tempo symptoms and significantly improved social and organizational skills relative to the control group. Gains were maintained at follow-up.

► **Plumer, P.J., & Stoner, G. (2005). The relative effects of class wide peer tutoring and peer coaching on the positive social behaviors of children with ADHD. *Journal of Attention Disorders, 9*(1), 290-300.**

These authors investigated the effects of a class-wide peer tutoring program and peer coaching on peer social behavior of children with AD/HD. Using a single subject, multiple baseline design with three third- and fourth-grade students, peer social behaviors were observed in both academic and social settings with a primary focus on intervention effects in the latter setting. Results suggested that students participating in this program were actively and positively engaged with their peers while carrying out the program in the academic setting. How-

ever, when only the peer tutoring program was implemented, increases in positive peer social behavior were not observed in social settings. The authors suggest that the addition of peer coaching results in enhanced social behaviors during recess and lunch.

► **Schultz, B.K., Evans, S.W., & Serpell, Z.N. (2009). Preventing failure among middle school students with ADHD: A survival analysis. *School Psychology Review, 38*(1), 14-27.**

This study re-examined whether a consultation model referred to as the Challenging Horizons Program effectively reduced or delayed academic failure. Report-card data for two groups of students with AD/HD, one that received the program and a control group that did not, were compared on whether and when grade-point averages fell below passing. Results found that the group receiving the program significantly reduced or delayed the onset of failure experienced in both sixth and seventh grades even after student IQ was held constant. The authors suggest that these findings have practical implications for school-based interventions for students with AD/HD.

► **Volpe, R.J., DuPaul, G.J., Jitendra, A.K., & Tresco, K.E. (2009). Consultation based academic interventions for children with ADHD: Effects on reading and mathematics outcomes at one year follow-up. *School Psychology Review, 38*(1), 5-13.**

These authors sought to evaluate the effectiveness of two consultation-based models to enhance the educational functioning of children with AD/HD one year after treatment. Children meeting diagnostic criteria for AD/HD were randomly assigned to one of two consultation groups: traditional data-based academic intervention, which consisted of interventions based on consultant teacher collaboration; or intensive data-based academic intervention, which consisted of interventions using a data-based decision-making model involving ongoing feedback to teachers. Teachers implemented academic interventions over 15 months, and all children were assessed one year after treatment. Although initially there was significant, positive growth for the majority of the dependent variables for both intervention groups, the follow-up study found significant growth trajectories for only two of sixteen dependent variables. The authors suggest their findings highlight the need for sustained intervention efforts to address the educational functioning of children with AD/HD. ●