

Strategies to Improvise Teacher Tasking for Children with Attention Deficit Hyperactive Disorder (ADHD).

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Abstract: The purpose of this present article is to review the empirical support for teachers to provide strategies for tackling students with ADHD. Three major aspects discussed are alarming rise of ADHD among children, entangling issues with teaching students with ADHD and unleashing strategies for tackling such children. Practical implications of the school-based outcome literature will be delineated, including the need for the following: (a) technical-support mediated strategies; (b) classroom strategies; (c) Activity-based strategies; and (d) Peer tutoring strategies and (e) Homework strategies. It is suggested on bridging the gap between the empirical literature and actual practices employed in schools. School-based professionals are urged to implement empirically supported strategies through individualising interventions based on assessment data. Through long-term implementation of such evidence based strategies, it is hoped that the deficits characteristic of ADHD will be minimised and the likelihood of school success for these students optimised.

INTRODUCTION

“Attention makes genius; all learning, fancy, and science depend upon it. Newton traced back his discoveries to its unwearied employment. It builds bridges, open new worlds, and heals diseases; without it taste is useless, and the beauties of literature are unobserved.”

Robert Aris Willmott, English author

ALARMING RISE OF ATTENTION DEFICIT HYPERACTIVE DISORDER AMONG CHILDREN

The review of various research shows that, Attention deficit hyperactive disorder (ADHD) is one of the major public health problems afflicted a large number of children. However, this disorder has been described neither as a disease nor as an emotional disorder but a cluster of personality traits that appear normally in all children but more intensely in some children. ADHD occurs between 2 and 9.5 per cent of school age children worldwide in the age group of 6 to 12 years (Sharma & Sinha, 1997).

ADHD has been characterized as a “brain-damage syndrome” (Strauss & Lehtinen, 1947), “minimal brain damage (Gesell & Amatruda, 1947), “minimal brain dysfunction” (Clements, 1966), “hyperkinetic syndrome” (Cantwell, 1975), and “hyperactive child syndrome” (Stewart, Pitts, Craig, & Dieruf, 1966). Thus with increase in the years of research, the causal terminology associated with it underwent a transition from brain to behavior manifestations.

There is a plethora of research to identify the salient characteristics of ADHD over the years. Recently Barkley (1998) reported that ADHD syndrome could be broadly classified into two categories i.e. inattention and a combination of hyperactive and impulsive behavior. Similarly DSM-IV TR, classified ADHD under the ‘Attention-Deficit and Disruptive Behavior Disorders’. ICD-10 used a generally similar description to DSM-IV TR, but the placement of ADHD differs between the two. ICD-10 is broader than DSM-IV TR and has given a different terminology for the classification of ADHD that is, Hyperkinetic Disorder.

Beiderman (1991) confirmed that ADHD is a highly prevalent disorder which has an onset in early childhood,

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and persists into adolescence and adulthood. The majority of studies of ADHD children had highlighted the early onset as compared to other disorders especially in India.

Also in a recent study, Barkley (1998) observed that boys were three times more likely to develop ADHD than girls with a ratio of 9 to 1 presumably because boys were genetically more prone to disorders of the nervous system. In India, Chawla, Sahasi, Sundaram, & Mehta (1981) reported a ratio of 7:4.47 for males and females suffering from ADHD. Singh & Sabat (2002) suggested that cultural factors may predispose more males towards hyperactivity than females. This gender difference may have been based on the fact that males are considered more active and restless than females. In general boys are more prone to suffer from ADHD, both in clinics and in the community.

The research showed that Female cases had a high rate of medical illness, which affected their brain leading to language delay and intellectual retardation. Surprisingly, ADHD has been often overlooked in females because the symptoms in females are complicated and can be easily misinterpreted. As a result, majority of girls in India do not undergo a routine medical check-up (Singh, & Sabat, 2002).

Epidemiologic studies had noted that this syndrome varies from 5 to 10 per cent in pre-pubertal children, and the boy-girl ratio varies from 4:1 to 6:1. Follow up studies of these children revealed that they are prone to develop psychiatric problems in adolescence as well as later in life (Singh, & Sabat, 2002). Javorsky and Gussin (1994) studied college students suffering from ADHD and argued that adolescents and adults with this disorder were at risk to develop behavioral and emotional problems such as substance abuse, financial mismanagement, poor employment performance, difficulty in career selection and legal problems.

Review of literature also emphasized that ADHD has been linked to a variety of causal factors but the direct and immediate causes of the problems experienced by ADHD children remains a mystery. A variety of potential factors, ranging from biological to psychosocial, may produce ADHD. Several efforts had been made to establish the aetiology of hyperactivity using various groups of children. However, no single cause of ADHD had been identified. The majority of research indicated the possibility of brain damage as the major cause of

ADHD. The aetiological factors studied so far included neurobiological, genetic brain damage, maturation lag and psychosocial factors (Singh, & Sabat, 2002).

Studies on Psychosocial factors highlighted aggressiveness and noncompliant behavior that are related to family and social factors may be seen in children who are diagnosed as ADHD (Barkley, 2005). Hence a plethora of research indicates that an important role is played by the school and teachers, needs to be highlighted so as to improvise their teaching strategies in tackling children with ADHD.

ENTANGLING ISSUES WHILE TEACHING STUDENTS WITH ADHD

Although it is among the most noble and often most satisfying professions, teaching can be an overwhelming job. In most general education classrooms, the teacher has a broad spectrum of learners. Educators are responsible for analyzing, knowing, and understanding each individual student's strengths, interest, and needs. They are responsible for knowing their school system's and individual school's policies and procedures, national standards, curriculum demands and requirements, educational theory, assorted instructional strategies, resources and material, psychology, and child development (Silverman, Iseman & Jeweler, 2009). When teachers have students with ADHD in their classroom, they are further responsible for knowing and understanding the strategic and efficient ways of tackling such children.

Problems attending to classroom instruction are common in children (DuPaul, Stoner & O'Reilly 2002) with as many as 16% of elementary school students displaying frequent inattention and/or poor concentration (Wolraich, Hannah, Baumgaertel & Feurer 1998). Among students who meet criteria for Attention Deficit Hyperactivity Disorder (ADHD), up to 80% exhibit academic performance problems (Cantwell and Baker 1991) and these students are at increased risk for grade retention, placement in special education, and dropping out of school (Barkley, Fischer, Smallish & Fletcher 2006; Murphy, Barkley & Bush 2002). Attention problems also compromise achievement in children not formally diagnosed with ADHD (Merrell and Tymms 2001, 2005; Rabiner, Murray, Schmid & Malone 2004), predict the onset of reading difficulties (Rabiner, Coie & CPPRG. 2000), and undermine



traditional academic interventions such as tutoring (Rabiner, Malone & CPPRG, 2004).

Another research indicates that middle and high school teachers feel that the adolescent with ADHD also may be faced with the following issues: completing and submitting homework on time; forgetting homework assignments; disorganization; motivation and persistence; specific academic challenges; issues with planning ahead; disruptive behavior; issues with following directions; difficulty understanding expectations and executive functioning deficits (Dendy, 2000, 2006; Dendy & Zeigler, 2003). These findings indicate a strong need to develop more effective classroom interventions for inattentive students.

STRATEGIES FOR EFFECTIVE TACKLING OF STUDENTS WITH ADHD

Educators selecting evidence-based interventions for students with ADHD are often interested in interventions with known effectiveness for increasing academic performance. The core symptoms of ADHD are chronic inattention, impulsivity, and hyperactivity (American Psychiatric Association, 2000; Reif, 2005), and in schools this often translates to interference with academic achievement and performance (Atkins & Pelham, 1991; Raggi & Chronis, 2006).

The review of literature indicates following strategies for improvisation teacher tasking for children with ADHD:

TECHNICAL SUPPORT-MEDIATED STRATEGIES

Computer-aided instruction has intuitive appeal as a universal design feature and for children with ADHD because of its interactive format, use of multiple sensory modalities, and ability to provide specific instructional objectives and immediate feedback. Computer-aided instruction has not been well studied in children with ADHD (Hoffman, J. B., & DuPaul, G. J., 2000; Xu, C., Reid, R., & Steckelberg, A., 2002). Studies with small numbers of subjects showed promising initial results (Ford, M. P., V; & Cox, J. (1993) but did not examine the effects on academic achievement. A small study of 3 children with ADHD that used a game-format math program found increases in academic achievement and increased task engagement (Ota, K. R., & DuPaul, G. J., 2002).

- Computer-assisted instruction (CAI) entails the

presentation of specific instructional objectives, highlighting of essential material, use of multiple sensory modalities, division of content into smaller chunks of information, use of repeated trials, and provision of immediate feedback about response accuracy (Ford et al., 1993; Kleiman et al., 1981; Mautone et al., 2005; Ota and DuPaul, 2002). This method has been suggested as a way to improve the sustained attention and work performance of children with ADHD. Aspects of CAI may help teachers plan individualized activities for students with shorter attention spans, allowing these students to be more actively involved in learning, and increasing confidence and motivation (Fitzgerald, 1994)

CLASSROOM STRATEGIES

Typically, classroom interventions for students with ADHD focus on reducing problematic behaviours and enhancing task engagement. Although these are worthy treatment targets, the reduction of disruptive activity does not ensure that students are making adequate academic progress. Stated differently, although a student is less disruptive and impulsive, it does not necessarily mean that the student is doing better schoolwork or obtaining higher academic grades. Because ADHD symptoms frequently are associated with academic impairment, academic achievement should be targeted directly in a comprehensive treatment plan (DuPaul, G. J. & Weyandt, L.L., 2006). The table-1 shows the behavioural function along with the different kinds of interventional strategies to be used by the teacher to obtain desired behaviour.

One possible academic intervention is to modify instruction to directly address putative academic deficits. Specifically, direct instruction can be used to pinpoint academic behaviours to increase and to provide students with multiple opportunities to acquire and practice new

Table 1. Classroom interventions linked to behavioural function

Behavioural function	Antecedent-based intervention	Consequent-based intervention
Obtain teacher attention	Remind of class rules and state connection between appropriate behaviour and receipt of teacher attention	Provide attention contingent on appropriate behaviour while ignoring disruptive behaviour; time out from positive reinforcement contingent on disruptive behaviour
Obtain peer attention	Remind of class rules and encourage classroom peers to ignore disruptive behaviour	Provide peer attention contingent on appropriate behaviour (e.g., peer tutoring)
Avoid/escape effortful tasks	Increase stimulation value of task; reduce size of task	Provide brief "attention breaks" when sub-units of task are completed



academic skills (Slocum, 2004). Direct instruction has been used successfully with a variety of disability populations and age groups (Grossen, 2004; Jitendra, Edwards, Sacks, & Jacobson, 2004; Shippen, Houchins, Steventon, & Sartor, 2005). Another example of a teacher-mediated academic intervention is the use of interspersal approaches for the acquisition of mathematics skills (e.g., Skinner, Johnson, Larkin, Lessley, & Glowacki, 1995). A final example of instructional modifications is to alter how tasks and instructional materials are presented to students. Zentall (1989) has shown that children with ADHD are more likely to attend to and complete tasks that include engaging stimuli within the task, as opposed to assignments that include extra-task stimuli (e.g., in the margins).

ACTIVITY-BASED STRATEGIES

Task or instructional modifications involve implementing procedures such as reducing task length, dividing tasks into subunits and setting goals for the child to achieve in shorter time intervals, using increased stimulation of the task (e.g., color or texture), giving explicit instructions, and modifying the delivery or modality of instruction depending on the student's individual learning style (e.g., fast-paced versus slow-paced, visual versus auditory) (Dubey and O'Leary 1975; Dunlap et al., 1994; Ervin et al., 1998; Zentall and Leib, 1985). These methods focus on increasing the structure and organization of the child's environment, making goals and tasks appear more manageable to reduce frustration and increase persistence, and increasing relevant stimulation to help sustain attention.

An important task modification that has been explored and found effective for students with developmental disabilities is that of choice making (Newton et al., 1993). Choice making allows the child a certain level of individual decision-making and personal control over the nature of the task. This consists of allowing the child to select academic tasks or materials from a number of pertinent and structured alternatives. This technique may be beneficial not only in increasing task performance and productivity, but also in improving social relatedness (Koegel et al., 1987).

PEER MEDIATED STRATEGIES

Peer tutoring is a method of instruction in which children with ADHD are paired with a peer tutor that aids them in learning academic material (Raggi, V. L., & Chronis, A. M., 2006). This method allows for one-to-one instruction

that is individually tailored to the child's academic ability and is delivered at the student's own pace (DuPaul and Stoner, 1994). It requires active responding on the part of the student, and frequent, immediate feedback in the form of prompts and praise is provided by the tutor. Peer tutoring has been found to be effective in a variety of academic areas for students with a wide range of cognitive and academic abilities (Greenwood et al., 1991).

Class Wide Peer Tutoring (CWPT) (Greenwood, Delquadri, & Carta, 1988) is one of the most widely researched and implemented peer tutoring models. CWPT has been found to enhance the mathematics, reading, and spelling skills of students of all achievement levels (for a review see Greenwood et al., 2002). This form of peer tutoring includes the following steps: (a) dividing the class into two teams; (b) forming tutoring pairs within each team; (c) students take turns tutoring each other; (d) providing tutors with academic scripts (e.g., mathematics problems with answers); (e) tutors providing praise and points contingent on correct answers; (f) tutors correcting errors immediately with an opportunity for practicing the correct answer; (g) teacher monitoring tutoring pairs, and providing bonus points for pairs that are following prescribed procedures; and (h) tallying points by each individual student at the conclusion of each session. Tutoring sessions typically last 20 min with an additional 5 min for charting progress and putting materials away (DuPaul, G. J. & Weyandt, L.L., 2006).

Advantages of this approach include one-to-one individualized instruction, frequent and immediate feedback, active participation of students, and high levels of practicality and acceptability (Raggi, V. L., & Chronis, A. M., 2006). Peer tutoring can be implemented by teachers in a general education setting with a high level of fidelity using a resource (i.e., peer tutors) that is readily available in the classroom (DuPaul and Henningson, 1993).

Peer tutoring may also provide opportunities for the development of prosocial behaviour in children with ADHD, as they are encouraged to interact with peers who may not otherwise choose to interact with them socially (Raggi, V. L., & Chronis, A. M., 2006).

HOME WORK STRATEGIES

A particularly important academic target for the treatment of children and adolescents with ADHD is



homework completion and accuracy. Large-sample educational research has shown that, aside from ability, time spent on homework is the best predictor of student grades and achievement (Cooper et al., 1998; Keith, 1982).

Research on homework interventions for students with general academic problems have suggested that the use of goal setting and contingency contracting, parent training in structuring the home setting, and parent-teacher consultation are beneficial in the remediation of homework difficulties (Anesko and O'Leary, 1982; Bergan and Kratochwill, 1990; Kahle and Kelley, 1994; Miller and Kelley, 1994; Weiner et al., 1998). In homework-specific parent training programs, parents are taught to identify and target specific behaviors and establish a consistent homework routine (i.e., determining a quiet setting with minimal distractions, starting the process early, providing aid when needed, breaking down assignments, and prioritizing tasks) (Anesko and O'Leary, 1982). Given the frequent difficulties children and adolescents with ADHD experience in the areas of planning ahead, prioritizing, filtering out distractions, and focusing on one task at a time, it makes sense that a homework intervention specifically targeting these areas would be particularly beneficial for this group.

Another parent-implemented intervention designed to target homework difficulties is the use of goal setting procedures. Goal setting consists of the comparison of performance goals against present performance level, and may be viewed as a form of self-monitoring in which children evaluate their own performance (Bandura, 1977).

CONCLUSION

ADHD is a multifaceted, chronic disorder that is associated with deficits in multiple areas of functioning. As such, psychotropic medication and home-based behavioural strategies, while effective, rarely are sufficient in decreasing ADHD symptoms over the long term. Empirical studies of school-based interventions have supported the efficacy of strategies for teacher tasking for children with ADHD. Furthermore, some promising interventions for addressing social relationship difficulties among students with this disorder have been developed. School-based professionals are urged to implement empirically supported strategies through individualising interventions based on assessment data.

Furthermore, a long-term approach to treatment across school years will necessitate ongoing, consistent communication among parents, teachers, physicians, and other health professionals. Through long-term implementation of evidence based strategies, it is hoped that the deficits characteristic of ADHD will be minimised and the likelihood of school success for these students optimised.

REFERENCES

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington DC: Author.
- American Psychiatric Association (2005). *Diagnostic and Statistical Manual of Mental Disorders: Text Revision, 4th Ed. (DSM-IV TR)*. Washington DC: APA. Barkley, R.A.(1998). *Attention deficit hyperactivity disorder. Scientific American*, 9, 44-49.
- Anesko, K. M., and O'Leary, S. G. (1982). The effectiveness of brief parent training for the management of children's homework problems. *Child and Family Behavior Therapy* 4: 113-126.
- Atkins, M. S., & Pelham, W. E. (1991). School-based assessment of attention deficit disorder. *Journal of Learning Disabilities*, 24, 197-204.
- Bandura, A. (1977). *Social learning theory*, Prentice-Hall, Englewood Cliffs, NJ.
- Barkley, R. A. (2005). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment (3rd Edn.)*. New York: Guilford.
- Bergan, J. R., and Kratochwill, T. R. (1990). *Behavioral consultation and therapy*, Plenum Press, New York.
- Biederman, J. (1991). Attention deficit hyperactivity disorder. *Annuals of Clinical Psychiatry*, 3(1), 9-22.
- Cantawell, D. (1975). Genetic studies of hyperactive children: Psychiatric illness in biologic and adopting parents. In R. Fieve, D. Rosenthal, & H. Brill (Eds), *Genetic research in psychiatry*, Baltimore: Johns Hopkins University Press.
- Cantwell, D. P., & Baker, L. (1991). Association between attention deficit/hyperactivity disorder and learning disorders. *Journal of Learning Disabilities*, 24, 88-95.
- Chawla, P.L., Sahasi, G., Sundaram, K.R., & Mehta, M. (1981). A study of prevalence and pattern of hyperactive syndrome in primary school children. *Indian Journal of Psychiatry*, 23, 313-322.
- Clements, S. (1966). *Minimal brain damage in children. NINDB Monograph No.3*, Washington, DC: US Public Health Services.
- Cooper, H., Lindsay, J. J., Nye, B., and Greathouse, S. (1998). Relationships among attitudes about amount of homework assigned and completed, and student achievement. *Journal of Educational Psychology* 90: 70-83.
- Dubey, D. R., and O'Leary, S. G (1975). Increasing reading comprehension of two hyperactive children: Preliminary investigation. *Perceptual Motor Skills* 41: 691-694.
- Dunlap, G., dePerczel, M., Clarke, S., Wilson, D., Wright, S., and White, R. et al., (1994). Choice making to promote adaptive behavior for students with emotional and behavioural challenges. *Journal of Applied Behavior Analysis* 27: 505-518.



- DuPaul, G. J., & Henningson, P. N. (1993). Peer tutoring effects on the classroom performance of children with attention deficit hyperactivity disorder. *School Psychol Rev*, 22, 134–143.
- DuPaul, G. J., & Stoner, G. (2003). *ADHD in the schools: Assessment and intervention strategies (2nd ed.)*. New York: Guilford.
- DuPaul, G. J., Stoner, G., & O'Reilly, M. J. (2002). Best practices in classroom interventions for attention problems. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology, vol. 2 (pp. 1115–1127)*. Washington, DC: National Association of School Psychologists.
- DuPaul, G. J. & Weyandt, L.L. (2006). School-based Intervention for Children with Attention Deficit Hyperactivity Disorder: Effects on academic, social, and behavioural functioning. *International Journal of Disability, Development and Education* Vol. 53, No. 2, pp. 161–176
- Ervin, R. A., DuPaul, G. J., Kern, L., and Friman, P. C. (1998). Classroom-based functional and adjunctive assessments: Proactive approaches to intervention selection for adolescents with attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis* 31: 65–78.
- Ford, M. P., V; & Cox, J. (1993). Attending behaviors of children with ADHD in math and reading using various types of software. *J Computers Childhood Educ*, 4, 183–196.
- Gesell, A., & Amatruda, C.S. (1947). In *Developmental Diagnosis (2nd Ed.)*. New York: Hoeber-Harpe.
- Greenwood, C. R., Delquadri, J., & Carta, J. J. (1988). *Classwide peer tutoring*. Seattle, WA: Educational Achievement Systems.
- Greenwood, C. R., Maheady, L., & Delquadri, J. (2002). Classwide peer tutoring programs. In M. R. Shinn, H. M. Walker, & G. Stoner (Eds.), *Interventions for academic and behavior problems II: Preventive and remedial approaches (pp. 611–649)*. Bethesda, MD: National Association of School Psychologists.
- Greenwood, C. R., Maheady, L., and Carta, J. J. (1991). Peer tutoring programs in the regular education classroom. In Stoner G., Shinn M., and Walker H. (Eds.), *Interventions for achievement and behavior problems (pp. 179–200)*. Silver Spring, MD: National Association of School Psychologists.
- Grossen, B. (2004). Success of a direct instruction model at a secondary level school with high-risk students. *Reading & Writing Quarterly: Overcoming Learning Difficulties*, 20, 161–178.
- Hoffman, J. B., & DuPaul, G. J. (2000). Psychoeducational interventions for children and adolescents with attention-deficit/hyperactivity disorder. *Clinical N Am*, 9, 647–661.
- Javorsky, J., & Gussin, B. (1994). College students with ADHD: An overview and description of services. *Journal of College Student Development*, 35(3), 170-177.
- Jitendra, A. K., Edwards, L. L., Sacks, G., & Jacobson, L. A. (2004). What research says? about vocabulary instruction for students with learning disabilities. *Exceptional Children*, 70, 299–322.
- Kahle, A. L., and Kelley, M. L. (1994). Children's homework problems: A comparison of goal setting and parent training. *Behavior Therapy* 25: 275–290.
- Keith, T. Z. (1982). Time spent on homework and high school grades: A large sample path analysis. *Journal of Educational Psychology* 74: 248–253.
- Ko. R. Jr., and Horner, R. H. (1993). Validating predicted activity preferences of individuals with severe disabilities. *Journal of Applied Behavior Analysis* 26: 239–245.
- Ota, K. R., & DuPaul, G. J. (2002). Task engagement and mathematics performance in children with attention-deficit hyperactivity disorder: effects of supplemental computer instruction. *School Psychology Q*, 17, 242–257.
- Raggi, V. L., & Chronis, A. M. (2006). Interventions to address the academic impairment of children and adolescents with ADHD. *Clinical Child and Family Psychology Review*, 9, 85–111.
- Reif, S. F. (2005). *How to reach and teach children with ADD/ADHD (2nd ed.)*. San Francisco: Jossey-Bass.
- Sharma, A., & Sinha, S.P. (1997). A comparative study of prevalence of ADHD among male and female school children. *Indian Journal of psychology*, 72 (1 & 2), 21-25.
- Shippen, M. E., Houchins, D. E., Steventon, C., & Sartor, D. (2005). A comparison of two direct instruction reading programs for urban middle school students. *Remedial and Special Education*, 26, 175–182.
- Silverman, M. S., Iseman, S. J. & Jeweler, S. (2009). *School success for kids with ADHD*. Waco, TX: Prufrock Press.
- Singh, L., I. & Sabat, N., N. (2002). *Attention Deficit Hyperactive Disorder: A conceptual overview*. *Indian Psychological Abstracts and Reviews*, 9:2, 215-242.
- Skinner, C. H., Johnson, C. W., Larkin, M. J., Lessley, D. J., & Glowacki, M. L. (1995). The influence of rate of presentation during taped-words interventions on reading performance. *Journal of Emotional and Behavior Disorders*, 4, 214–223.
- Stewart, M.A., Pitts, F., Craig, A., & Dieruf, W. (1966). The hyperactive child syndrome. *American Journal of Orthopsychiatry*, 36, 861-867.
- Strauss, A.A., & Lehtinen, L.E. (1947). *Psychopathology and education of the brain-injured child*. New York: Grune & Stratton.
- Weiner, R. K., Sheridan, S. M., and Jenson, W. R. (1998). The effects of conjoint behavioral consultation and a structured homework program on math completion and accuracy in junior high school students. *School Psychology Quarterly* 13:281–309.
- Wolraich, M. L., Hannah, J. N., Baumgaertel, A., & Feurer, I. D. (1998). Examination of DSM-IV criteria for attention-deficit/hyperactivity disorder in a county-wide sample. *Journal of Developmental and Behavioral Pediatrics*, 19, 192–168.
- World Health Organization (1993). *The ICD-10 Classification of Mental and Behavioral Disorders: Diagnostic criteria for research*. Geneva: WHO.
- Xu, C., Reid, R., & Steckelberg, A. (2002). Technology applications for children with ADHD: assessing the empirical support. *Educ Treatment Child*, 25, 224–248.
- Zentall, S. S. (1989). Attentional cuing in spelling tasks for hyperactive and comparison regular classroom children. *The Journal of Special Education*, 23, 83–93.
- Zentall, S. S., and Leib, S. L. (1985). Structured tasks: Effects on activity and performance of hyperactive and comparison children. *Journal of Educational Research* 79: 91–95.

