BY SANDRA F. RIEF

MAKING CLASSROOMS WORK FOR STUDENTS WITH ADD

All students, but particularly those with ADD, need creative, engaging instruction and activities that provide them with frequent opportunities to interact with their peers and showcase their strengths.

There are many factors that affect how successfully students with ADD will function and perform in the classroom. Structure is one of the most critical elements for success. A structured class is not to be mistaken for a traditional, rigid, no-nonsense classroom. On the contrary, the most creative, colorful, active, and stimulating classrooms can be the most structured.

Structure needs to be provided through clear communication, expectations, rules, consequences, and follow-up. Academic tasks must be structured by breaking long-term assignments into manageable increments with teacher modeling, guided practice, standards and feedback. Teachers need to carefully structure the schedule — alternating active and quiet periods/activities. Students with ADD require assistance structuring their materials, workspace, handling of choices, and transitional times of the day.

Some general rules of thumb for helping the student with ADD and preventing behavioral problems include: Use proximity control — move up close and among the students; make direct eye contact and use physical cueing when possible (a gentle hand on shoulder). Review and practice rules and expectations with high frequency. Be generous with positive reinforcement. (Try hard to catch students engaged in appropriate behavior and praise specifically what they are doing "right.") Behavioral contracts that monitor and reinforce in relatively shorter intervals are generally necessary for students who have ADD.

Signaling and redirecting are very effective techniques that help to head off trouble while allowing the student with ADD to save embarrassment in front of peers. Signals can be hand signs or words that are agreed upon privately, beforehand, between teacher and student to warn or cue students (to calm down, get up and stretch, stop talking out, sit appropriately). An observant teacher can redirect students by asking them to do tasks such as straightening the book shelf, running an errand to the office, or passing out papers. Transitional times can be eased by signaling (flashing the lights, ringing a bell, playing music) and rewarding smooth transitions. Teachers can avoid many behavioral problems by limiting the

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amount of instructional lag time when students are waiting for teacher direction.

All students, but particularly those with ADD, need creative, engaging instruction and classroom activities that provide them with frequent opportunities to interact with their peers and showcase their strengths. It is very important to use a variety of strategies and multi-sensory techniques to reach all of our students' learning styles in the classroom. Visual strategies include: outlining, diagramming, highlighting the text, use of films, videos, pictures, modeling, gestures, graphic organizers, and use of pointers and colored pens/chalk. Auditory strategies include discussion groups, music/rhythm, verbal games, paraphrasing, oral reading, reports, and tests. Tactile-Kinesthetic strategies make use of manipulatives, computers, games, movement/dance, role-playing, projects, hands-on activities, writing in the air, and demonstrations.

(The overhead projector is one of the most essential tools in the classroom that holds students' focus through use of color, framing, and guided outlines. It also allows the teacher to write and model while facing the class. As transparencies can be made in advance, it reduces instructional lag time.)

To maintain the attention of the student with ADD it is important to allow for active participation in the lessons. Techniques that are most effective increase student response opportunities and limit the amount of time the teacher is doing all of the talking or calling on students one at a time. Strategies such as unison responses or, "Turn to your partner and share or write...," work well. The numerous benefits of cooperative learning structures and techniques in the classroom are well recognized and documented. Cooperative learning is particularly beneficial for students with ADD in the classroom because it allows for high response opportunities, shorter wait time, increased structured peer interactions, and a perfect vehicle for teaching social skills in an authentic setting and context.

There are many environmental modifications in the classroom that make a significant difference for students with ADD. Teachers should take care to seat these students away from distractors such as the door, learning centers, noisy heaters, air-conditioners, etc. Try to seat these students up front within cueing distance and among well-focused students. It is very helpful to provide and encourage the use of study carrels/office areas, privacy boards, earphones, and earplugs as options for students to block distractions during seat work and test-taking times.

Students with ADD need more time/more space. Allow extra time for verbal responses to questions, and more time to complete assignments and take tests. Provide more working desktop space and distance between desks when possible. Avoid situations on the rug, in lines, and around tables that will cause bumping into/pushing and intruding in each others' space.

Teachers must be willing to accommodate the extreme difficulty many students with ADD have with written expression by accepting alternative methods of assessing their skills and mastery of concepts. It is critical to modify assignments and cut the written workload for these students. Allow printing and encourage the use of word-processing/typing.

THERE IS NO SUBSTITUTE FOR TEACHERS WHO ARE WILLING TO WORK AS A TEAM ON THE CHILD'S BEHALF, AND WHO MAINTAIN FLEXIBILITY, TOLERANCE, A SENSE OF HUMOR, AND BELIEF IN EVEN THEIR MOST CHALLENGING OF STUDENTS.

It is critical to teach students organization and study skills. Require students to use a three-ring notebook (with subject dividers, extra paper, and a pencil pouch), and an assignment calendar. Having frequent notebook checks with positive reinforcement and periodic notebook/desk clean-outs is very helpful. Provide handouts to students that are already three-hole punched. Teachers should make a habit of modeling and leading students in the skill of appropriately recording assignments on their calendar. Study buddies/peer partners can assist students who have ADD with this task. It is essential that assignments/due dates are presented visually as well as orally, and are clearly communicated to students and parents.

There is no substitute for teachers who are willing to work as a team on the child's behalf, and who maintain flexibility, tolerance, a sense of humor, and belief in even their most challenging of students.●

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THE ACADEMIC IMPACT OF ADD

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Why do some children, despite all sorts of clear "risk factors" (e.g., intrauterine distress, traumatic births, low birthweight, late walking and talking, history of medical problems, etc.), end up doing fine? Why do some other children, with none of the characteristics which are known to lead to later difficulties, wind up with social and academic problems? One prominent explanation: the former group simply were lucky; they experienced a fortuitous match between their needs and the environments in which they grew up. The latter group, despite a better physiological start, suffered the consequences of growing up in environments hostile to their developmental needs. This concept has become known in developmental psychology as the "environmental match" or the "goodness of fit."

Children with ADD are at considerable "risk" for school failure. While ADD once may have been considered a relatively minor problem, we now know better. Follow-up studies (Barkley, Fisher, Edelbrock, & Smallish, 1990; Gittelman, Mannuzza, Shenker, & Bonagura, 1985; Weiss & Hechtman, 1986) published in the last ten years document the too-often tragic outcomes of the mismatch between needs of students with ADD and the typical school's environment. A few highlights: 90% of children with ADD underachieve in school; half are retained at least once; 20% or so have reading difficulties; 60% have serious handwriting difficulties; 30% drop out prior to completion of high school; only 5% complete a four year college. In social-emotional areas, the picture is at least as bleak: of these children in the various studies, who would have been diagnosed initially only as ADD using current criteria, more than half experience serious social problems, including marked difficulty in making and keeping friends; 60-70% develop enough behavioral problems to be labeled as having "oppositional defiant disorder" in childhood; 30% or more develop even more severe "conduct disorder"; contact with police is twice as common as with peers; substance abuse is two to three times more frequent.

The point is this: without some modification, the typical school is not a "good fit" for students with ADD. Unless the school environment is altered to make it match the unique constellation of needs presented by students with ADD, negative outcomes will continue.

What characteristics of students with ADD lead to school problems?

Impulsivity, hyperactivity, inattention, distractibility, short attention span, disorganization, and deficits in rule governed behavior and executive function, all sound like a teacher's worst nightmare; but some or all of these behaviors characterize a large group of students (between 3% and 5% of the school population) who have ADD. Thus, on average, one child per classroom has ADD.

For students with ADD, school too often starts with failure experiences and goes downhill from there. Elementary age children with ADD cannot

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consistently follow the first set of expectations which teachers communicate to their classes: "Stay in your seat until given permission to get up, raise your hand before talking, listen and follow directions when I talk, and do the work I give you (even if it is not inherently interesting) for the amount of time I consider appropriate." The situation worsens for secondary school students with ADD. "Independence" and "self-direction" are big themes, and these are operationalized by requiring larger scale, longer term projects. Frequent class changes occur, calling for near constant adaptations to new physical environments, with different combinations of visual and auditory stimuli, in addition to varying personalities of teachers, who often have contrasting sets of rules. Combine these factors with the normal developmental (i.e., hormonal) changes experienced by all adolescents, and the mix for students with ADD may be especially problematic.

It is important to remember two points about ADD. First, this is not a unitary disorder. The term is used to describe a shifting syndrome of behaviors which share much in common, but it is likely that ADD really is several related disorders. Currently two major sub-types are recognized: ADD, primarily inattentive type; and ADD, primarily hyperactive-impulsive type. Students with the former sub-type of ADD are markedly different than those who present with hyperactivity and impulsivity as prominent behaviors. The primarily inattentive student with ADD is more likely to be seen as "spacey" and "in a fog." Such children tend to think slowly and move slowly. They appear never to be quite "in gear" cognitively. This subgroup, it appears, have difficulty becoming sufficiently aroused and vigilant so that they can pay attention well. Rather than inciting problems and being actively rejected by peers as their hyperactive-impulsive cousins are, the "primarily inattentive" students with ADD tend to withdraw socially and be ignored by peers and teachers. Inattentive students with ADD also appear much more likely to have learning problems (as opposed to behavioral problems) and to be anxious and avoidant (instead of aggressive). While students with both sub-types are challenges for teachers, and while the environ-

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mental fit between typical schools and the students' needs is poor for both, they have somewhat different needs.

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The second important point to bear in mind about ADD is that the disorder occurs on a continuum of severity. Unlike a broken leg, for example, which is a condition you either have or don't have, it is possible to have mild, moderate, or severe ADD. The implication is this: not all students with ADD will require the same degree of environmental modification. Further, and perhaps more importantly, students with ADD are consistently inconsistent. Thus Johnny may behave horridly one morning and do just fine under what appear to be the same circumstances the next day; or Jane may know her spelling words cold on Thursday and fail the test on Friday. Most students with ADD do fine one-to-one, or when the activity has rapid and intense reinforcement (e.g., playing video games), or when tasks are short in duration or novel (brighter, louder, newer than other stimuli) in some way. On the other hand, problems will consistently be seen under the following set of circumstances: 1) the task is relatively difficult, and thus the student with ADD must think hard to be successful (the "information load" for the task is high); 2) the activity requires an extended time period to complete, so sustained effort is needed; and 3) direct supervision is lacking — no one is literally or figuratively standing over the student to reinforce and to refocus when necessary. Seatwork activities are particularly difficult in school; that's where problems with attention can be observed most predictably. Meeting those three criteria in homework is notoriously difficult for students with ADD.

What academic areas are most affected?

While students with ADD may have impaired functioning on any school task, some activities tap more directly into the specific deficits central to ADD. Written language usually is problematic. To begin with, the majority of students with ADD have poor fine motor skills. Thus the motoric activity of holding a pencil and making it do what it's

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supposed to do can be a struggle. Motor planning is required in order to correctly form letters and connect them with one another, but such planning does not come easily for impulsive students. Actively thinking about forming the letters and spelling the words is required for many students with ADD. Confronted with a sentence to write, the student must think what she wants to say; then the words must be selected; then the spelling of the individual words must be considered; then how the letters themselves are formed may occupy conscious thought ("Let's see. To make an 'l' in cursive, I have to start at the line and make a loop up and then back down like this....") By the time a few words have been written, the intent of the sentence may have been lost; so the student must return to "go" and start again. Divided attention, that is moving back and forth between two or more tasks or ideas, is particularly difficult for students with ADD. If the motor and other mechanical aspects of writing occupy full attention, the message of the written communication will be lost; or at least the flow of the writing will be lacking. Students with ADD describe major difficulties with taking notes in lecture classes: "I can listen, or I can write. I can't do both. When I write, I lose the instructor until I'm done." Obviously, much of the message is lost when that happens. Reviewing notes taken by students with ADD reveals large gaps in the information which makes its way onto paper, validating this problem.

Rote memorization is excessively difficult for students with ADD. Nothing requires greater sustained concentration than memorizing. Yet learning math facts involves huge components of rote memorization. How do we learn that 9 x 7=63? We just go over and over the number combination until an automatized connection is formed in our brains. There is not much context to that piece of information; and higher level cognitive processes are not much help. The information has to be memorized. Students with ADD are impaired in their ability to make these types of connections through rote memorization, partly because of their difficulty forcing focused, intense concentration for any subject, and partly because the material is not inherently interesting and attractive. Math facts, by their nature, are dull and colorless. Thus the learner must bring more of themselves to the task; and students with ADD are unable to "turn on" attentional processes on demand. Higher level math is much more conceptual and logical, and thus is more interesting. However, in order to get the right answer, students usually have to utilize math facts memorized in elementary school. A common pattern among students with ADD is a markedly better grasp of math concepts than an ability to perform computations.

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ADD impairs functioning on many sequentially ordered activities. Think of academic tasks in which the order in which the information is presented, or the order in which the problem is solved, is critical. These will be difficult for students with ADD . Working multiple digit multiplication or long division problems requires that a set of steps be followed in the right order. If any step is followed out of order (e.g., you don't bring down the next number from the dividend before the divisor is entered again), your answer is wrong. Of course, such problems require sustained attention to small details within the problem, sometimes for a minute or more. If attention wanders, careless mistakes also will occur.

Other sequentially ordered tasks include spelling. Knowing the letters to be used in a word does little good if the order is wrong. Spelling requires memorization, too, at least for the many "irregular" words in the English language; and thus rote memorization and sequencing problems combine to impair spelling.

While written language (including spelling) and math are the most prominent problem areas of students with ADD, all types of academic functioning can be compromised by the disorder. Distractibility, disorganization, and lack of intensity of focus, along with the writing and/or math difficulties noted above, will greatly limit productivity. Thus the amount of work completed within a given time frame will be markedly less than that produced by peers. Inability to remember multiple step directions often results in students with ADD being confused about assignments and wasting much time getting started, only to find later that the wrong problems were done or the incorrect work sheet was used. Forgetting the things necessary for tasks, for example failing to bring home the books needed for homework or projects, obviously interferes with getting assignments done.

Report cards for students with ADD give a glimpse into the nature of the disorder. Typically, grades will vacillate from year to year, or even within marking periods of the same year. Part of the variability is due to the "fit" between the educational environment and the student's needs. For example, if a teacher writes assignments on the board

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and makes sure that all students have the materials needed to complete the assignments before they leave for home, the student with ADD may do fine. If writing is a big part of the curriculum one year, and the only way to do well in history or in science is to write regularly, history or science grades for the student with ADD may plummet.

Often the best clues about how much the disorder is impairing school functioning is to look at the comments teachers include with the grades. The most common notes are "does not complete assignments," "inconsistent test scores," and "missing homework." These notes indicate difficulties for the teacher in evaluating the student's work. However, they may or may not indicate how much or how well the student is learning the material.

Any good news?

Students with ADD often do well on individually administered and/or closely monitored group administered tests. Thus, even though grades usually are below predicted levels based on IQ, the student with ADD often is learning a great deal.

Given appropriate modifications of the environment, the majority of students who have mild or moderate ADD can perform adequately in school. When a good match occurs between the students' needs and the classroom environment, the magnitude of external aides required for success is lessened. Because ADD is a chronic, usually lifelong disorder, the problem within the student does not go away. The behavioral manifestation varies greatly, though, depending on the current environmental match. Medication, one-to-one tutoring, special seating, reduced volume of homework, and the other common types of modifications may or may not be required at a given time in the student's development depending on whether the environment already is geared to be user-friendly to those with ADD.

Many teachers have realized that a good environment for students with ADD is a good learning environment for everyone; and a considerable number have begun altering their instructional practices accordingly. Teachers who are unwilling or unable to change must realize, however, that modifications designed specifically for the individual needs of the student with ADD are legally required and much more readily available. Some reason for optimism about the long term outcomes for the current generation of students with ADD clearly exists.

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