

Filling the Potholes in the Road to Inclusion:
Successful research-based strategies for
intermediate and middle school students
with mild disabilities

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Abstract

Teachers have sought appropriate strategies to ensure that students with disabilities receive the support they need within the general education classroom (Klingner, Vaughn, Hughes, Schumm, & Elbaum, 1998). Paving the road to inclusion with successful academic experiences for students with mild disabilities has been especially challenging in the intermediate and middle grades, where emphasis on content mastery becomes an issue of accountability to state mandates, and many students are experiencing gaps in their content knowledge and in their knowledge of learning strategies. The good news is that the gaps are being filled with research-based strategies designed to accomplish high academic achievement of all learners. This article explores the specific characteristics among differentiated instruction, anchored instruction, cooperative learning, peer tutoring, and strategic learning that make them effective research-based strategies for repairing the potholes in the road to successful inclusion.

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As the trend toward inclusive school practices has become more firmly established, teachers have sought strategies to ensure that students with disabilities receive the academic and social support they need within the general education classroom (Klingner, Vaughn, Hughes, Schumm, & Elbaum, 1998). The road to “responsible inclusion” (see Vaughn & Schumm, 1995) has been rocky for administrators, teachers, and students, particularly in documenting sufficient student achievement of many students included in general education classrooms where undifferentiated, large group instruction is the norm (Baker & Zigmond, 1995). Paving the road with successful academic experiences for students with mild disabilities has been especially challenging in the intermediate and middle grades, where emphasis on content mastery becomes an issue of accountability to state mandates.

Teachers may ask if the methods they are using truly address the needs of all learners in ways that not only build content knowledge, but move students to higher levels of thinking. Some teachers remain philosophically opposed to making accommodations in the general education classroom for students with disabilities because they believe students need to learn to cope with the academic demands of middle and high school, where exceptions are unlikely to be made (Baker & Zigmond, 1995).

The need for sophisticated instruction, what Palincsar, Magnusson, Collins, and Cutter (2001) call “advanced teaching practices” is especially important in the intermediate and middle grades when pre- and early

adolescents must increasingly use their foundational knowledge and basic skills in higher-order thinking tasks and problem-solving. It is at this point that many marginalized students, particularly those with disabilities, are only superficially engaged in academic tasks because they have depended on others for help or they only appear to be trying to complete those tasks (Summey & Strahan, 1997). Many students with disabilities are experiencing gaps in the skills needed to gain knowledge in content and in the strategies needed to be successful in general education classrooms. Consequently, dangerous potholes await them on the road to successful learning.

The good news is that the potholes are being filled! Teachers have available to them research-based strategies that are designed to engage all learners in inclusive classrooms, and that share one or more specific characteristics that better ensure the success of all students.

What are these specific characteristics? Table 1 summarizes the characteristics of strategies that are being used successfully with intermediate and middle school students.

Each of the strategies that follow incorporates one or more of the characteristics of “advanced teaching practices” or successful research-based instruction. Teachers may find confirmation of what they use presently in their classrooms, or may add one or more of these strategies to their repertoire.

Characteristics of Successful Research-Based Strategies

- Commitment of teacher time in planning and execution of lesson(s)
- General and special education teachers available to students for **full** class period
- Clear understanding by both general and special education teachers of language and concepts central to content being covered
- Successful collaboration between teacher and student, using instructional conversation and directive questioning
- Use of conceptual anchors (video, story, problem-based scenario) to create a shared experience and framework for building on prior knowledge and to engage students in higher-order thinking skills
- Use of flexible, creative differentiated instruction with student input
- Use of cooperative learning with emphasis on instructional conversation and responsibility for mutual learning

What are these strategies and how do they incorporate the characteristics?

Differentiating instruction (Tomlinson, 1999) means beginning where students are rather than beginning with the curriculum guide. Teachers in differentiated classes use time flexibly, call upon a range of instructional strategies, and create a community of learners where teachers and students are partners. Summey and Strahan (1997), using Howard Gardner's (1983) theory of multiple intelligences, created a *Mindful Learning* approach to teaching the novel, *The Outsiders*, by S. E. Hinton (1968) to seventh grade students in an inclusive language arts class. Since many of the students had severe reading disabilities, students saw the film of the novel first, then participated in activities such as making collages about the characters, designing skits with the characters, or composing songs. Differentiated instruction allowed for reading strategies to be taught using preferred intelligences and learning modalities. The students with disabilities were more engaged

in the classroom activities than during more traditional instruction, and the majority consistently demonstrated the use of reading strategies.

Differentiated instruction, centered around district and state-mandated curriculum and core content assessments, permits teachers to design multi-grade level projects that evaluate progressively complex skills, with content and process differentiated for learners with diverse needs. The Pittsford Central School District in Pittsford, New York, designed a creative writing project, called "A Picture is Worth...Many Words," that offered different writing options to diverse students who had chosen a picture stimulus from a file of newspapers, magazines, or journal photographs, allowing each student to work on the same overall objective, but at an appropriate readiness level (Pettig, 2000). Sequentially complex tasks allow for students at different skills levels to progress while covering required content.

Table 1 contains a reference for the Pittsford creative writing project, as well as other resources on differentiated instruction.

Table 1: Sample Resources on Differentiated Instruction

Books:

Moll, A. (2003). *Differentiated instruction guide for inclusive teaching*. Portchester, NY: Dude Publishing.

Tomlinson, C. A. (1999). *The differentiated classroom: Responding to the needs of all learners*. Alexandria, VA: ASCD.

Winebrenner, S. (1996). *Teaching kids with learning difficulties in the regular classroom*. Minneapolis, MN: Free Spirit Publishing.

Articles:

Holloway, J. H. (2000). Preparing teachers for differentiated instruction. *Educational Leadership*, 58(1), 82-83.

Pettig, K. (2000). On the road to differentiated practice. *Educational Leadership*, 58(1), 14-18.

Tomlinson, C. A. (2000). Differentiated instruction: Can it work? *Education Digest*, 65(5), 25-32.

Web sites:

<http://www.ascd.org/pdi/demo/diffinstr/differentiated1.html>

ASCD site with definitions, lesson plans, demos.

<http://www.cast.org/ncac/index.cfm?i=2876>

National Center on Assessing the General Curriculum site with articles, lessons.

<http://www.sde.com/hottopic/differentiatedinstruction.htm>

Staff Development for Educators site with resources and workshops.

What makes differentiated instruction an “advanced teaching practice?” What characteristics does differentiated instruction share with other successful research-based strategies? Certainly commitment of teacher time comes with the extensive planning and preparation involved in differentiating instruction. Teachers cannot adequately plan

appropriate instruction without thorough background in content and a structured plan for content coverage.

Teachers must be available fully to students, frequently checking comprehension and allowing for student input. Last, cooperative learning activities, based on authentic prob-

lems, can be important components in differentiated instruction, particularly as tools for students to engage in instructional conversation, providing feedback to each other on comprehension and skill development.

Anchoring instruction (Hasselbring, 1994) is another strategy that is used to promote higher-order thinking among students in content area classrooms. A conceptual anchor, often video-based, is used to assist learners in forming mental models, and allows all learners within a classroom to form a common frame of reference. Combined with project-based or problem-based learning (Duch, Groh, & Allen, 2001), students are challenged to use higher-order thinking skills to solve authentic, multi-solution problems within the context of cooperative groups (see Table 2 for guidelines in using anchored in-

struction). Students are involved in constructing their own knowledge through disciplined inquiry, generating products of learning that have value beyond school. Eighth grade students, including several who had mild disabilities, viewed *Kim's Komet* from the Learning and Technology Center at Vanderbilt University (1996), and then were challenged to construct graphs from tables of information related to distance, rate, and time (Bottge, Heinrichs, Chan, & Serlin, 2001). Students constructed their own derby cars and ramp to test speeds at various heights of the ramp. The remedial math students, including students with disabilities, scored as high as the pre-algebra students on the posttests. Students were able to work cooperatively in small groups to problem-solve, with the teacher continually probing the students' understanding of the tasks and their thinking.

Table 2: Guidelines for Using Anchored Instruction and Problem-Based Learning

- Choose an appropriate anchor based on assessment of students' prior knowledge.
- Determine guidelines for group structure (heterogeneous group composition), with appropriate role assignments based on individual student needs/skills.
- Practice general problem-solving procedures, including defining the problem.
- Choose an authentic problem (one that has relevance to the students) that has a variety of possible solutions.
- Have individual as well as group accountability (within the skills levels of each group member).

Suggested resources for anchored instruction and problem-based learning:

Cognition and Technology Group at Vanderbilt. (1990). Anchored instruction and its relationship to situated cognition. *Educational Researcher*, 19(6), 2-10.

Kain, D.L. (2003). *Problem-based learning for teachers, grades K-8*. Boston, MA: Allyn and Bacon.

Torp, L. & Sage, S. (1998). *Problems as possibilities: Problem-based learning for K-12 education*. Alexandria, VA: Association for Supervision and Curriculum Development.

<http://www.udel.edu/pbl/>

University of Delaware site for Problem-Based Learning (PBL)

<http://www2.imsa.edu/programs/pbl/cpbl.html>

Illinois Mathematics and Science Academy PBL site

<http://www.peabody.vanderbilt.edu/projects/funded/jasper/Jasperhome.html>

The Jasper Series site at Peabody (Vanderbilt University)

<http://www.samford.edu/pbl/index.html>

Samford University site for PBL

A similar format was followed with fifth-grade students with and without mild disabilities investigating 19th century westward expansion in the United States (Ferretti, MacArthur, & Okolo, 2001). Following the viewing of *The American Experience: The Donner Party* (Public Broadcasting Service, 1992), students used historical inquiry to examine primary and secondary sources to understand the experiences of emigrants and the bias with which evidence can be written. Students then designed a multimedia presentation about one of the emigrant groups to present to parents at Open House night. While students were working cooperatively in small groups, teachers used an individual interview component with the students with disabilities in order to tap their understanding of both the historical content and the process of historical

inquiry. This permitted the teachers to use questioning and instructional conversation techniques to test student understanding of the concepts and strategies being used. Students with disabilities not only scored as well as non-disabled students on the posttest, but had more favorable attitudes about their self-efficacy as learners in social studies than they did prior to the project.

In both examples of anchored instruction, students were able to establish a common frame of reference or shared experience which not only tapped into their prior knowledge, but provided a forum for instructional conversations and feedback. In both examples, teachers continuously probed students for understanding of content and strategies, and in the history unit, used an individual in-

terview component with students with disabilities. In cooperative learning groups, students were held responsible for mutual learning, as evaluated by both products and post-tests. These characteristics helped ensure student mastery of content.

Cooperative learning (Slavin, 1995) provides students with the opportunity to engage in instructional conversations that clarify, probe, and solidify learning (see Table 3 for guidelines for using cooperative learning). As students articulate their thoughts, their peers in the cooperative group can provide feedback, or ask follow-up questions to accelerate the comprehension process (Vaughn, Gersten, & Chard, 2000). Students have the opportunity to “think aloud,” and teachers have a setting where they can “mini-conference” with groups, checking for understanding and elaborating on thinking and problem-solving strategies appropriate to the group task (Klingner, Vaughn, & Schumm, 1998; Vaughn et al., 2000). Using a cooperative learning format, Palincsar et al. (2001)

conducted research on fourth and fifth grade students with and without disabilities who participated in guided inquiry science instruction that established the classroom as a community of inquiry. Investigations and data gathering were done in small, cooperative groups, where students first shared their interpretations of how to investigate, what sense to make of their data, and how to represent their claims to the whole classroom community. In addition to the instructional conversation occurring in each cooperative group, individual students with disabilities were briefly interviewed by the teachers every day with questions such as “What did you learn today?” or “What would have helped you learn more today?” to permit elaboration and/or clarification of content by the teachers. The majority of students with special needs showed positive changes in their understanding of scientific inquiry comparable to those of their non-disabled peers at the end of the project.

Table 3: Using Cooperative Learning with Students with Mild Disabilities

- Group students heterogeneously according to individual students’ needs, and assign roles based on individual student’s needs and abilities.
- Prepare students by modeling appropriate behavior in a group setting.
- Monitor student learning consistently by questioning/interviewing the students.
- Make sure that group partners encourage the participation of students with disabilities, and provide needed support.
- Structure the task using clear guidelines, especially for the students with disabilities.

Suggested resources for cooperative learning:

Cohen, E. (1994). *Designing groupwork: Strategies for the heterogeneous classroom* (2nd ed.). NY: Teachers College Press.

Goor, M. B. & Schwenn, J. O. (1993). Accommodating diversity and disability with cooperative learning. *Intervention in School and Clinic*, 29(1), 6-16.

<http://www.clcrc.com/pages/cl.html>

This site provides critical components of cooperative learning.

<http://www.nerel.org/sdrs/areas/issues/content/contareas/math/ma1group.htm>

This site provides information on grouping practices.

http://www.ed.gov/databases/ERIC_Digests/ed434435.html

This is an informational site on different grouping practices.

Use of cooperative learning as an effective strategy for students with and without disabilities necessitates thorough planning and execution on the parts of both general and special educators. Grouping of students, assignment of tasks, and individual and group outcomes should facilitate responsibility for mutual participation and learning. Full engagement of teachers in monitoring student understanding through questioning and clarification is essential if all students are expected to acquire and understand required content. In order to develop a community of inquiry, as in the Palincsar et al. (2001) study, teachers had to rely on instructional conversations and questioning within the cooperative groups as well as daily individual interviews with students with disabilities to permit elaboration of content and to check understanding.

Peer tutoring has been established in the literature as a successful alternative instructional method for students with disabilities (Fuchs, Fuchs, Mathes, & Simmons,

1997; Mastropieri, Scruggs, Mohler, Beranek, Spencer, Boon, & Talbott, 2001). Tutoring arrangements can be same-age or cross-age, depending on the needs of the students and availability of tutors (see Table 4 for guidelines on using classwide peer tutoring). Research on this type of instructional arrangement has been found to increase students' opportunities to respond, provide additional practice for targeted skills, and result in improvement in academic skills (Byrd, 1990; Dugan, Kamps, Leonard, Watkins, Rheinberger, & Stackhaus, 1995). Peer tutoring has been successfully used to improve academic skills in the areas of reading (Kamps, Barbetta, Leonard, & Delquardi, 1994) and social studies (Maheady, Harper, & Secca, 1988). Delquardi, Greenwood, Whorton, Carta, & Hall (1986) described three important principles of instruction that peer tutoring incorporates: (1) individualization of the targeted skill, (2) frequent opportunities to respond with a rapid pace of instruction, and (3) the use of immediate corrective feedback. The peer-assisted learning strategies (PALS) read-

ing intervention program, developed by researchers at Peabody College of Vanderbilt University (Fuchs et al., 1997) has been validated as a successful reading intervention program in urban schools in grades 2-6. The PALS program consists of three critical reading strategies: (1) partner reading with the tutee receiving immediate corrective feedback for word-calling errors, (2) the reader summa-

rizing the passage with a sequential retelling of important events and main idea, and (3) the readers predicting what will happen next in the passage, with the stronger reader reading first. Students with and without disabilities report that they enjoy playing the role of the teacher, while receiving extra help from peers with fluency and comprehension.

Table 4: Guidelines for Using Classwide Peer Tutoring

- ★ Have each member of the pair share the roles of tutor and tutee, and train them by modeling appropriate behaviors for each.
- ★ Train each pair in giving feedback and in error correction procedures.
- ★ Have pairs practice each role, with monitoring by the teacher.
- ★ Begin tutoring with less complex drill and practice or vocabulary words, then transition to more challenging content when students are proficient at tutoring procedures.
- ★ Choose materials with the appropriate difficulty level carefully, noting the skills of the tutoring pair.

Source: Fulk, B. M. & King, K. (2001). Classwide peer tutoring at work. *Teaching Exceptional Children*. 34(2), 49-52.

Classwide peer tutoring perhaps best incorporates the characteristic of instructional conversation between student pairs, with close monitoring and questioning additionally by the classroom teachers. Instruction can be differentiated to the needs of students in the pairs, using a story or passage as an anchor for common understanding. This strategy requires extensive teacher time in planning and execution, particularly in training students to give appropriate feedback. Having general and special education teachers fully available to students permits close monitoring of specific skill deficits.

Strategic learning, employing the concept of direct instruction of a specific strategy, helps students improve comprehension and mastery of content. Many students with disabilities lack the strategies for learning and comprehending contextual material, especially textbooks. Klingner et al. (1998) developed *Collaborative Strategic Reading*, which combines reading comprehension strategy instruction with heterogeneous cooperative learning, for use with fourth graders with and without disabilities in an inclusive general education classroom. The strategy included “previewing” (reading the title and headings and predicting what the passage might be about),

“click and clunk” (monitoring comprehension during reading by identifying difficult words and concepts in the passage), “get the gist” (restate the most important idea in the passage), and “wrap up” (after reading, summarize what has been learned and ask questions that might occur on a test). Students were given direct instruction on how to use the strategy, an opportunity to “think aloud” about why, how, and when the techniques would be used, and then opportunity for practice. Small groups then took turns modeling the strategies for the whole class. Last, students worked in heterogeneous groups of five or six, using the strategies to learn content from a social studies text. When compared to the control group, students learning the strategies made greater gains in reading comprehension, and equal gains in content knowledge. Strategic learning incorporates responsibility for mutual learning within a cooperative learning format, using “think aloud” techniques, modeling, and practice in using the strategies.

Students are able to tackle content area reading, such as social studies, in a collaborative context, using conversation about both content and the specific strategies used to understand the content.

In summary, these research-based strategies share a number of common characteristics that promote successful learning in all students. First is the commitment of teacher time – in planning and in execution. In all of the studies cited, the special education and general education teachers were available to students for the **full** class time. Additionally, both general and special education teachers had to have a clear understanding of the language and concepts central to the study of specific topics, and to know the purposes of instruction and ways to advance

student knowledge within that specific instructional content. Successful collaboration is a key element. Teachers had to be committed to engaging students as partners, continuously involving students in instructional conversation and directive questioning to ascertain student understanding and possible misconceptions.

The various studies and strategies highlighted frequently employed a conceptual anchor in the form of a video or authentic problem-based scenario that permitted the development and use of a shared experience between teacher and learners that facilitated the construction of new knowledge. Intermediate and middle school students with and without disabilities are able to more readily identify with authentic problems that challenge their higher-order thinking and problem solving skills (Levin, Hibbard, & Rock, 2002; Torp & Sage, 1998), and provide an avenue for shared decision-making. Anchored instruction using problem-based learning affords an opportunity for students to work cooperatively, satisfying social needs while facilitating social skill development, particularly in students with disabilities (Bottge et al., 2001).

Last, teachers had to be committed to facilitating the learning of all students through differentiating instruction when needed. Comprehensive planning, flexibility with grouping of students, willingness to creatively approach content and allowing for student input are key elements to successful differentiated instruction (Pettig, 2000). Successful differentiation requires systemic change, both in teaching practices and classroom culture (Tomlinson, 1999). Teachers must begin with small steps, such as differentiating instruction in a specific content area,

and should find supportive colleagues willing to accompany them on the journey.

The need for continuing research

In order for students with disabilities to be successful achievers in inclusive settings, accommodations must meet the specific needs of the learner, and must be supported by research that confirms the effectiveness of the strategies. All learners, with and without disabilities, benefit from the planning, time commitment, and teacher-student partnership that accompany appropriate methods. These “advanced teaching methods” are keys to a successful inclusion experience, and a smoother road to success for students with disabilities. It is incumbent upon teacher preparation programs and school districts mandating professional development to include instruction on these research-based strategies. Only when all educators, general and special, are able to meet the needs of all learners, will students with disabilities receive the quality of education they deserve.

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