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HELPING HIGH-PERFORMING STUDENTS ACHIEVE AT HIGHER LEVELS: A REVIEW OF THE LITERATURE

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BACKGROUND ON HIGH-PERFORMING STUDENTS

One of the challenges of teaching is meeting the needs of each learner each day. The teacher must bear in mind at all times that "the class" comprises individual students, each with his or her own needs, talents, preferences, aversions, and goals. While curriculum writers can prescribe instructional goals and objectives that all learners are expected to meet, the creativity of the teacher is expended in ensuring that these goals and objectives become real and can be attained by each individual in the class.

This challenge is heightened when the class is composed of students with differing levels of academic preparation and skill. Especially in elementary schools, most classes are deliberately structured to represent a wide range of academic achievement. Although there are sound pedagogical reasons for such assignment practices, the fact is that this increases the need for teachers to plan carefully for each student, not just for groups of learners. Although we often think of the "needy" learner—that student who may not read as well as other students, or the one for whom mathematics poses a real challenge—it is nevertheless true that teachers aspire to educate each child.

In Wake County Public School System (WCPSS) schools, classes at all levels are filled with very successful students. Consider the following:

- In 2006-07, 55% of all students in Grades 3 through 8 scored Achievement Level IV on End-of-Grade tests in reading, while 33% of students scored in Achievement Level IV in mathematics.

- Almost 29% of all students enrolled in Algebra I were in Grade 8 and 98% of middle school students enrolled in Algebra I scored at or above grade level on the End-of-Course test.

- In 2007-08, 4,605 high school students took a total of 9,217 Advanced Placement (AP) exams. For students who earn a 3 or better on these tests, college credit can be awarded. More than 74% of all AP tests taken in 2007-08 had scores of 3 or better.

- More than 24,400 WCPSS students in grades 4 through 12 (17.5% of the total WCPSS grades K-12 population) are enrolled in the Academically Gifted Program.

- Elementary AG teachers provide some direct service to students identified as strong or very strong in reading and/or mathematics, in their area of identification. Moderates are served in the regular classroom. Middle school AG resource teachers plan, consult, and collaborate with language arts and mathematics teachers for differentiating instruction in cluster groups within the regular classroom.

- More than 73% of WCPSS 12th graders took the SAT test in 2007-08, earning an average score of 1565. This average score is higher than the average score in the state and in the nation. Moreover, the average score for White students, Black/African American students, and Hispanic/Latino students in WCPSS exceeded the average scores for similar groups of students in the state and nation.

It is apparent that many, many students in WCPSS schools perform at high levels of academic achievement. Fortunately, educational researchers have identified a number of educational practices and activities that can help teachers meet the needs of these successful students, enabling teachers to engage in best practices to nurture and foster these students, meeting their special learning needs and preferences. In this bulletin, we bring together some of this research-based information, pointing the way to resources that can help teachers at all grade levels ensure that the needs of all their students are being met.

WHAT THE NATIONAL LITERATURE SAYS ABOUT ASSISTING HIGH-PERFORMING STUDENTS

Teachers who are most effective at helping high achievers show optimal achievement take a proactive approach to teaching these students (Willis, 2007). Learning strategies closely aligned with meta-cognitive skills appear frequently in literature about effective strategies for increasing the achievement of high achievers (Cawelti, 2004; ERS, 2003a; ERS, 2000c; ERS, 1998; Slocumb & Payne, 2000; Willis, 2007). Some specific learning/teaching strategies mentioned frequently in the literature include:

- Collaborative processes that engage students and teachers in developing plans for learning
- Differentiated instruction
- Self-monitoring and self-directed learning
- Setting high standards for all students and encouraging students to set high standards for themselves
- Understanding child development and meta-cognitive skills

Collaborative Processes, Cooperative Learning, and Team Teaching

Processes that engage students together with their teachers are mentioned in national research as a helpful approach in improving the performance of high-achieving students. Strategies for collaborative learning/teaching include engaging students in planning approaches to their learning, teaming with other teachers, and emphasizing cooperation rather than competition.

Lessons planned by two or more teachers may be more powerful and fully developed than those planned by an individual teacher. Collaboration among teachers also helps teachers learn to work with one another and obtain support and new ideas about improving their performance (ERS, 2000a).

Some high achievers level off in their accomplishments because they fear being singled out by their peers (ERS, 1998; Willis, 2007). Classroom strategies that model cooperative learning over competition for grades and status can help these students. Recognizing a wide range of student accomplishments and emphasizing learning over "winning" create a culture of inclusion rather than one that celebrates the efforts of a few students at the expense of those who "don't win."

Differentiated Instruction

Most articles about high-achieving students discuss the effectiveness of differentiated instruction. Differentiated instruction is an approach to adjusting, compacting, and grouping students for optimal instruction and learning. Implementing this approach requires being familiar with the standards of differentiated instruction as well as various learning/teaching approaches and the students themselves (Chapman & King, 2005).

Some key strategies in the literature on differentiated instruction include identifying areas of overlap between subjects/topics, using a graphic-organizer framework for teaching, teaching and utilizing effective group work, assessing the learner, and creating school and classroom climates for learning (Anderson, 2007; Carolan & Guinn, 2007; Chapman & King, 2005; ERS, 2000c; Gregory & Chapman, 2007; Lawrence-Brown, 2004; Lewis & Batts, 2005; Willis, 2007).

Adjusting includes various aspects: adjusting the teaching/learning content (while maintaining the curriculum); adjusting the process (through flexible grouping, learning centers, independent contracts with students, adjusting the questions posed, thematic units, compacting, independent study, and tiered assignments); and adjusting the product (through ongoing assessment, varying group configurations, offering multiple teaching strategies, emphasizing student strengths once they're identified, recognizing learning modalities and individual student interests, and providing clear criteria for grading/assessment) (Lewis & Batts, 2005).

Aligning lesson plans and leading classroom activities that are differentiated according to Bloom's Taxonomy also aid differentiated instruction (Gregory & Chapman, 2007).

Self-Monitoring and Self-Directed Learning (Scaffolding)

Highest-achieving students tend to analyze situations in order to identify strategies that work for them, seek new approaches and adapt previously used approaches to learning, monitor their own

performance, and apply new strategies if they are not satisfied with their performance (ERS, 2003a). Effective practices for helping these students improve their performance utilize this knowledge of high achievers and build on it (Cawelti, 2004; ERS 2003a; Willis, 2007).

Scaffolding describes the type of assistance offered by a teacher or peer to support self-directed learning. In the process of scaffolding, the teacher helps the student master a task or concept that the student is initially unable to grasp independently. The teacher offers assistance with only those skills that are beyond the student's capability, thus allowing the student to complete much of the task unassisted (Lipscomb, Swanson & West, 2008).

Some high achievers may lack awareness of the full array of learning strategies available to them (ERS, 2000c; Slocum & Payne, 2000). Teachers can help students learn and incorporate these skills by utilizing directed discussion to point out alternative strategies that may be more effective for them. For instance, a teacher may ask students to describe how they accomplished a task or learned a new concept, then ask why they chose that method and which methods were discarded. Focusing on strategies used rather than answers to the assignment's questions help high achievers develop these critical-thinking skills, which can then be practiced until the student is comfortable with the skill itself and the concept of applying new strategies to his or her learning.

Research describes the importance of helping students learn what is most important and how that importance is measured (Cawelti, 2004; ERS 2000b; ERS, 1998; Willis, 2007). Students who are able to articulate consequences of classroom activities, grades, testing outcomes, graduation, etc., are more likely to improve their achievement continually and maintain high standards for themselves. Understanding why a certain class is important to their educational future, for instance, helps students motivate themselves to not only "work harder" but to seek out and apply new learning strategies to achieve competence in that class.

Encouraging self-monitoring and self-teaching to foster achievement and independence in high-achieving students is mentioned frequently in the literature (Cawelti, 2004; ERS, 2003a; ERS 2000b; ERS, 2000c; ERS, 1998; Willis, 2007). Students can collaborate with teachers to help define their goals, monitor their own progress, and build organizational skills that will help them achieve. Some practices to encourage self-monitoring and self-teaching include the following:

- Modeling strategies by "thinking aloud" in the classroom and inviting students to do likewise
- Using multimedia technologies to provide explicit instruction and demonstration so that students can observe many models of comprehension and find those that work best for them
- Providing opportunities for students to practice skills independently, and then in groups
- Using a wide variety of student work, illustrations, "scripts," and a complete assessment interview to demonstrate and evaluate students' use of strategies
- Utilizing real-world examples of the concepts being learned in the classroom
- Setting aside classroom time for collaborative work in organizing and setting standards

Setting High Standards for All Students

Setting high classroom standards and helping students set high standards for themselves are mentioned frequently in the research literature (Cawelti, 2004; ERS, 2003a; ERS, 2000c; ERS,

1998; Willis, 2007). One of the consequences of setting high standards—and one reason students may avoid setting high standards for themselves—is that students who lack knowledge of a variety of learning strategies may have difficulties in mastering more advanced material or concepts and may, therefore, experience "failure" (Willis, 2007). Educators should utilize enrichment in conjunction with scaffolding support to build resiliency and willingness to take risks, and even to permit students to make mistakes and help them recognize the value in occasional mistakes. It is important to be available to students—especially elementary and middle school students—when they are encountering and processing unfamiliar material and concepts so that they are supported through this period and can identify strategies that will help them succeed (Cawelti, 2004; ERS, 2003a; ERS 2000b; ERS, 2000c; ERS, 1998; Willis, 2007).

Examples of communicating high standards in the classroom include the following (ERS, 2003a):

- Preparing many open-ended, probing questions about the material being taught
- When questioning students, increasing wait time to demonstrate trust in students' ability to adequately process and share information
- Posting examples of challenging questions throughout the room, along with the types of responses expected
- Teaching and consistently incorporating question words that have been shown to trip up students on standardized tests (e.g., analyze, infer, imply, trace, explain, and contrast)

Understanding Learner Development and Meta-cognitive Skills for Teachers and Students

Learning strategies closely aligned with the development and nurturing of meta-cognitive skills appear frequently in literature about effective strategies for increasing the achievement of high achievers (Cawelti, 2004; ERS, 2003a; ERS, 2000c; ERS, 1998; Slocumb & Payne, 2000; Willis, 2007).

Teachers who are aware of the stages of child development are knowledgeable about both the drivers of student achievement as well as the resistors, such as peer pressure, fear of failure, feelings of inadequacy and uncertainty, and other distractions and preoccupations of adolescence (Cawelti, 2004; ERS, 1998; Slocumb & Payne, 2000; Willis, 2007).

Knowing how students' development coincides with increasing capacity to understand and utilize developing meta-cognitive skills allows teachers to:

- Demonstrate mental frameworks for students to organize and understand information
- Focus attention on information that is most important (in whatever ways importance is measured)
- Link new concepts with students' prior knowledge to develop basic skills of experience and knowledge transference
- Utilize best-practices methods in the classroom to focus on what works best and what does not work for effective learners as a whole and for individual high achievers
- Engage students in monitoring their own comprehension of the material and recognizing when they need to change their approaches

ANNOTATED REFERENCE LIST

Wake County Public Schools Data on High-Achieving Students

Baenen, N. (Ed.) (2008). *WCPSS high school student outcomes, 2006-07 school year.* Raleigh, NC: Wake County Public School System.

Collaborative Processes, Cooperative Learning, and Team Teaching

Educational Research Service (2000a). *Harnessing the power of teacher collaboration to increase student learning.* Arlington, VA.

Lessons planned by two or more teachers may be more powerful and fully developed than those planned by an individual teacher. Collaboration among teachers also serves as a model for teachers to learn to work with one another and obtain support and new ideas about improving their performance.

Differentiated Instruction

Anderson, K. (2007). Differentiating instruction to include all students. *Tips for Teaching.* Washington, DC: Heldref Publications.

Provides an overview of differentiated instruction, which stems from beliefs about differences among learners, how students learn, learning preferences, and individual interests. The article includes examples of individual student experiences and samples of "choice and option boards" for study units.

Carolan, J., & Guinn, A. (2007). Differentiation: Lessons from master teachers. *Improving Instruction for Students with Learning Needs, 64(5),* 44-47.

Offers a brief overview of barriers to differentiation, best-practices observation techniques, personalized scaffolding, mining subject-area expertise, and creating "caring classrooms."

Chapman, C., & King, R. (2005). 11 practical ways to guide teachers toward differentiation (and an evaluation tool). *JSD*, National Staff Development Council, *26(4)*, 20-25.

Offers tips on differentiation techniques and an evaluation tool for classroom observation. Each of the 11 tips includes a rationale, adaptation possibilities, and professional development opportunities.

1. knowing the standards
2. varying instructional strategies and activities
3. creating a learning climate
4. exhibiting "with-it-ness"
5. providing a wide variety of materials and resources
6. being a catalyst for differentiation

7. knowing the students
8. assessing before, during, and after the learning
9. adjusting assignments
10. using flexible grouping designs
11. knowing that change is gradual

Educational Research Service (2000c). *Effective classrooms: Teacher behaviors that produce high student achievement.* Arlington, VA.

Data from residuals of teacher effectiveness show that effective teaching helps *all* students achieve, although lower-achieving students are the first to benefit from assignment to an effective teacher. Effective teachers can be observed using the following behaviors: good classroom management; efficient use of instructional time; and active engagement of students, using a wide variety of teaching skills and techniques focused on individual students' needs.

Gregory, G., and Chapman, C. (2007). *Differentiated instructional strategies: One size doesn't fit all.* Thousand Oaks, CA: Corwin Press.

Provides an in-depth overview of instructional strategies for student success, including: learning and remembering; best practice, brain research, and teaching techniques; identifying an area of overlap between topics; graphic organizer framework; effective group work; aligning lesson plans with the six levels of Bloom's Taxonomy; classroom activities differentiated according to Bloom's Taxonomy; curriculum approaches; assessing the learner, creating a climate for learning; and adjusting, compacting, and grouping.

Lawrence-Brown, D. (2004). Differentiated instruction: Inclusive strategies for standards-based learning that benefit the whole class. *American Secondary Education*; *32(3).*

With suitable supports (including differentiated instruction), students ranging from gifted to those with significant disabilities can achieve at higher levels. A multilevel lesson-planning system is presented along with a standards-based instructional context and multiple examples of individual students. Supports are outlined for students with special gifts and talents.

Lewis, S., and Batts, K. (2005). How to implement differentiated instruction? Adjust, adjust, adjust. *JSD*, National Staff Development Council; *26(4)*, 26-31.

Provides answers to the question "How can I possibly meet the needs of individual students when those needs are so diverse, and I have daily time constraints and a multitude of other responsibilities?" Basic answers: adjust the content (while maintaining the curriculum); adjust the process (flexible grouping, learning centers, independent contracts, adjusting the questions, thematic units, compacting, independent study, and tiered assignments); adjust the product (through ongoing assessment, varying group configurations, offering multiple teaching strategies, emphasizing student strengths once they're identified, recognizing learning modalities and individual student interests, and providing clear criteria).

Willis, J. (2007). Challenging gifted middle school students. *Principal Leadership*, Dec. 2007.

Differentiated instruction: Teachers can assess which students have achieved mastery of unit materials before teaching the units and thus offer individualized alternative instructional activities. Enrichment plus scaffolding support can build students' resiliency and willingness to take risks in their learning.

Self-Monitoring and Self-Directed Learning (Scaffolding)

Educational Research Service (2000b). *Helping students develop the skills of highly effective learners.* Arlington, Va.

Helping students develop learning strategies can improve performance of all students, including high-performing students. Learning strategies include: setting goals and planning an approach; focusing attention on information that's most important; forming mental frameworks for organizing and understanding information; linking new ideas with prior knowledge; monitoring one's own comprehension of material; and recognizing when one needs to change his/her learning approach.

Teachers can do this by embedding skills in the curriculum content: modeling the strategies and explain how to carry them out; informing students about when and how to use them; reminding them to use the strategies; outlining the strategy's usefulness through constant feedback; reassessing student performance as a result of using the strategies.

Educational Research Service (2003). *Focus on helping students develop the skills of highly effective learners.* Arlington, VA.

Teachers can help all students raise academic performance by expanding student understanding of the wide variety of **self-monitoring and self-directed learning strategies** available to them:

- setting goals and selecting/planning an approach
- focusing attention on the most important information
- forming mental frameworks for organizing and understanding information
- linking new ideas with prior knowledge
- self-monitoring comprehension of material and recognizing when to change the learning approach

Lipscomb, L., Swanson, J., & West, A. (2008). Scaffolding. *Emerging Perspectives on Learning, Teaching, and Technology.* University of Georgia Press.

Offers a definition and descriptions of scaffolding, along with examples of scaffolding, which is the type of assistance offered by a teacher or peer to support self-directed learning. In the process of scaffolding, the teacher helps the student master a task or concept that the student is initially unable to grasp independently. The teacher offers assistance with only

those skills that are beyond the student's capability, thus allowing the student to complete much of the task unassisted.

Willis, J. (2007). Challenging gifted middle school students. *Principal Leadership,* Dec. 2007.

Self-monitoring and self-learning: the strategies student develop through supported lesson extensions can be applied by having students ask their own questions, identify problems they want to solve, and pursue independent yet supervised investigations or experimentation while their classmates receive the instruction and review they need to reach basic skills mastery. Students can also evaluate their own progress and develop rubrics to help define new goals.

Setting High Standards for All Students

Cawelti, G., (ed.) (2004). *Handbook of research on improving student achievement* (third edition). Arlington, VA.: Educational Research Service.

Although this text is a synthesis of research on high-performing school systems and their approaches to each of the subject areas, it is useful in looking at schoolwide strategies to aid high-performing students. The factors most commonly connected to success with student achievement include: motivation to improve student achievement by virtue of the state's accountability plan; pressure placed on leaders by community members; stronger leadership and focus from superintendents; more serious quest for and use of improved instructional strategies to support the pursuit of educational equity and excellence; and everyday equity, including special help for low-performing schools.

Coon, P. (2004). Trigram: A gifted program model all students can enjoy. *Rural Special Education Quarterly*; *23(1),* 22-25.

Trigram offers three levels of participate to develop the affective and cognitive abilities of all students in schools.

1. Extended Studies: students identified as gifted participate in a pull-out system during one period a week to conduct independent study, participate in a community problem-solving group project, or take part in a creative drama or philosophy project.
2. Enrichment: gifted students and above-average achievers (selected via standardized test scores) are grouped for science, social studies, and language arts. These content areas are compacted into four days. Students must maintain a B average or are moved to probation, eventually placed back to a five-day week if they do not keep the B average.
3. All-School Program: a chance for all regular students to be part of the gifted program. Teachers schedule a time every nine weeks to go into regular classes in math, language arts, and social studies and invite students to participate in "academic games" that afford students the chance to take part in a districtwide competition.

Educational Research Service (2000b). *Helping students develop the skills of highly effective learners.* Arlington, VA.

Helping students develop learning strategies can improve performance of all students, including high-performing students. Learning strategies include: setting goals and planning an approach; focusing attention on information that is most important; forming mental frameworks for organizing and understanding information; linking new ideas with prior knowledge; monitoring one's own comprehension of material and recognizing when one needs to change his/her learning approach.

Teachers can do this by embedding skills in the curriculum content: modeling the strategies and explaining how to carry them out; informing students about when and how to use them; reminding them to use the strategies; outlining each strategy's usefulness through constant feedback; reassessing student performance as a result of using the strategies.

Renzulli, J. (2005). Applying gifted education pedagogy to total talent development for all students. *Theory into Practice, 44(2),* 80-89.

An overview of the Schoolwide Enrichment Model (SEM), a system set for increasing student effort, enjoyment, and performance, and for integrating a broad range of advanced-level learning experienced and higher-order thinking skills into any curricular area, course of study, or pattern of school organization. SEM brings together the three aspects of success for all students: the teacher (knowledge of discipline, romance with the discipline, and instructional techniques); the learner (interests, cognitive and nonintellective abilities, and learning styles); and the curriculum (structure of a discipline, content and methodology of a discipline, and appeal to the imagination).

Understanding Child Development and Meta-Cognitive Skills

Educational Research Service (1998). *Enhancing student engagement in learning*. Arlington, VA.

Utilizing intrinsic rather than extrinsic motivators has proven most effective in engaging students in improving their performance. The SCORE model, developed by Strong, Silver, and Robinson (1995), identifies four essential goals that drive people in engagement: **success** (the need for mastery); **curiosity** (the need for understanding); **originality** (the need for self-expression); and **relationships** (the need for involvement with others).

Strategies that incorporate best practices in yoking engagement with meta-cognitive development include constructing smaller learning communities, de-emphasizing competition, and building a schedule that works for students (particularly important for older students).

Slocumb, P., & Payne, R. (2000). Identifying and nurturing the gifted poor. *Removing the mask: Giftedness in poverty.* Baytown, TX: RFT Publishing Co.

Because gifted students from low-income households recognize that their backgrounds may not be equivalent to those of more affluent gifted students, they may experience feelings of inadequacy. They may lack many of the resources necessary to meet the academic

requirements of traditional gifted program and may lack some of the basic academic skills expected of gifted students. Such students may find that many of their friends are not in the same programs and at the same academic levels; relinquishing friends for the sake of academics is a dilemma and painful sacrifice.

Strategies that can help schools overcome these issues include "looping" (allowing a teacher to move from one grade level to the next with students, building a strong relationship); multi-age classrooms; self-contained classrooms and differentiated instruction; low teacher-student ratio; and early intervention.

Willis, J. (2007). Challenging gifted middle school students. *Principal Leadership*, Dec. 2007.

Positive attributes to teaching gifted middle-school students (verbal expression, a strong desire to explore and obtain information, creative problem solving, and good memory skills) must be put into context along with the challenges (adolescence, socialization issues, and behavioral maladaptations that can stem from "boredom"). Teachers and other school staff can work in teams to design individual programs for gifted students (even in mixed-ability classes) using what the author terms "neuro-logical" strategies and activities that encourage academic stimulation and engagement.