THE National Research Center on the Gifted and Talented NEWSLETTER

NRC G/T

NRC/GT Looks at Responses: You're Having a Test!

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You're having a test tomorrow! When was the last time you heard or actually said this statement? How did you respond? Excited! Panicked! Disinterested! Motivated! Perhaps you need more information, such as: What subject? What type of test? How long will it be? Does it count toward my final grade? Depending on the answers to these questions and others, your motivation or anxiety may increase or decrease. Your past experience with tests may influence your reactions to a great extent. Did the awareness of a test on a certain date help you focus your learning or, at the last minute, get ready for cramming?

You may react to tests in many different ways—as a challenge or a nightmare. In reality, tests are to inform you, your teachers, your parents, your administrators, and your community. Information resulting from tests should guide content and instruction, rather than just something that happens after a specific number of weeks pass by in classrooms around the country.

Through our research at The National Research Center on the Gifted and Talented (NRC/GT), we have learned a lot about how tests are used in classrooms. Of course, our findings and conclusions take on different perspectives, depending on the types and purposes of tests. For this article, a narrow perspective on achievement tests is offered: group assessment consisting of objective, close-ended items focusing on a specific set of content objectives. Essentially, test items are constructed in response to an overarching question: What do you know? There is no attempt to find out how you know this information, how you can possibly demonstrate your knowledge in alternative formats, or how you can apply this content knowledge to similar or novel problems or situations.

There are numerous books to consult about the history and dynamics of testing (cf. Elmore & Rothman, 1999; Lyman, 1998). Some are very technical; others are step-by-step approaches to designing tests that measure students' content knowledge. Books explore the world of testing as a science and an art. Tests and subsequent test scores grab people's attention. When someone states test results, he/she sounds authoritative. There is an instant acceptance of the data as truth. Test development is a serious business. Some people embrace tests as an objective measure in response to a basic question: How are we doing? Others view tests as an intrusion on the true meaning of learning that goes beyond mastery of content knowledge. There are probably more viewpoints about testing than books about designing tests.

One viewpoint about tests is from a children's book. Children's book authors often capture the meaning behind situations, issues, or problems in such a clear, consistent way because they are writing for and appealing to young people. Their stories and messages don't escape the adult mind. However, the stories may escape us because of lack of access.

How often do you read children's books?

☐ frequently ☐ sometimes ☐ infrequently ☐ never

If you selected "never" in response to the test question above, then you may have missed a wonderful interpretation of the impact of tests from one of the wisest children's authors and unproclaimed philosopher—Dr. Seuss. Knowledge, sentiment, understanding, and celebration come together in *Dr. Seuss Hooray for Diffendoofer Day!* (Seuss, Prelutsky, & Smith 1998). Read the final section of this book first. It is customary for authors to explain why they wrote the book and then acknowledge people who supported the process and made it possible to share it with others. This information is usually part of the preface. *Hooray for Diffendoofer Day!* turns the protocol of the book world topsy-turvey. After the story is a section entitled: "How this book came to be." The basis for this book was a creative idea sketched out by Dr. Seuss's many musings as he played with words, titles, and drawings of people and places. You

have an opportunity to trace his thoughts and ideas and witness the brainstorming process in which he engaged alone in his studio. Years went by and the potential book idea was referred to infrequently. Unfortunately, the book never reached completion during Dr. Seuss's lifetime. However, the treasure trove of ideas and illustrations did not remain hidden from all. With the support of his former editor and Alfred A. Knopf, Inc., two dedicated professionals completed the book or as the book jacket states—Dr. Seuss with the help of Jack Prelutsky and Lane Smith. The team of Prelutsky & Smith consists of a famous children's author and illustrator, respectively. They honored Dr. Seuss by completing this book. In a way, they, too, had to "pass the test" of bringing Dr. Seuss's musings and drawings to life and casting a story with meaning beyond words set in print.

Three short sections of *Hooray for Diffendoofer Day*! present a view of tests at Diffendoofer School that may ring true in your school:

> We also have a principal,
> His name is Mr. Lowe.
> He is the very saddest man
> That any of us know.
> He mumbles, Are they learning
> This and that and such and such?
> His face is wrinkled as a prune
> From worrying so much.

Later in the book Mr. Lowe announces:

> "All schools for miles and miles around
> Must take a special test,
> To see who's learning such and such—
> To see which school's the best.
> If our small school does not do well,
> Then it will be torn down,
> And you will have to go to school
> In dreary Flobbertown."

Of course, students took the test and they all waited for the results:

> One week later, after recess,
> Mr. Lowe meandered in.
> We'd never seen him smile before,
> But now he wore a grin.
>
> He soon began to giggle,
> Then his giggle grew by half,
> And then it really happened—
> Mr. Lowe began to laugh.

> "You've saved our school!
> You've saved our school!"
> He jubilantly roared.
> "We got the very highest score!"
> He wrote it on the board.

Obviously, all of the students in Dr. Seuss's book had perfect scores. Such is the reality of endings in some children's book.

Returning to the reality of school in 2001, we know that tests can be very useful in determining mastery of curriculum, assessing student progress over time, maintaining a system of accountability, and providing one view of performance. We must know why we are testing students, how we are testing students, and what we are going do with the resulting data.

Testing for Mastery of Content and Skills

In the NRC/GT research protocols, we use tests in multiple ways. Depending on the particular study, we may want an "insurance policy." For example, we know that many gifted and talented students have actually mastered the curriculum planned for their grade level prior to the first day of school. Does that sound impossible? In our study of curriculum compacting (Reis et al., 1993), we found that high ability students (grades 2-6) mastered 40-50% of the traditional classroom material in one or more of the following subjects: mathematics, language arts, science, and social studies. Try it yourself. Ask last year's elementary teachers to give you the names of the top 3 students in reading, spelling, or mathematics. Select a test that you would normally use at the end of the school year or choose a unit test from your teacher's manual. Administer the test to the top 3 students and determine the extent to which they know and understand the content.

This curriculum "insurance policy" is the documentation of what the children know. Obviously, we would not want to eliminate or streamline curriculum if the student could not prove mastery of specific grade level objectives. A profile of what children know allows us the luxury of considering what they want to know and, possibly, how they want to learn the new information and skills (Starko, 1986). Students may work with the next level of complexity in a specific content area or use their current content and skill mastery to extend learning across disciplines. For example, one second grade student was particularly adept at poetry writing. She created poems using many styles and formats. Her choice of topics was also wide ranging. She captured the essence of language and enjoyed sharing poems with others. To further the development of her poetry skills, she worked with a local poet. With a mentor, this young person escalated her writing ability as a poet and started working on developing original plays. Her language arts time was adjusted to meet her

learning needs. She and her mentor worked together twice a week during language arts. Periodically, this student's skills were checked with readily available unit tests to ensure that she continued to know, understand, and use grade level and above grade level skills to a high level of accuracy. With these assurances of the mastery of content and skills, the classroom teacher completely supported the elimination of grade level curriculum in language arts on a unit-by-unit basis for this young person.

Testing for Growth Over Time

When we studied the impact of programming for gifted and talented students (grades 2-3), cognitive and affective variables were of interest. In the quantitative study of learning outcomes, Delcourt, Loyd, Cornell, and Goldberg (1994) used achievement tests to look at the cognitive gains of programming using various service delivery models: special class, special school, pull-out program, and within-class program. We administered pre-post, standardized, norm-referenced tests for 2 years in mathematics, reading, science, and social studies to determine growth over time. We considered using tests that were one grade level above the students' current grade assignment. We experimented with a small group of students and found that out-of-level testing was not necessary for this age group.

Have you ever considered using out-of-level tests? Out-of-level tests will allow you to assess content mastery over time without encountering ceiling effects (i.e., students scoring at or near the 99th percentile on the pretest). You will learn what students do not know. You can document the challenge level of curriculum in your classroom, school, or district. If you currently use a pull-out program for several hours a week, you can also determine the extent to which time away from the regular education classroom affects mastery of concepts or principles. To what extent are students maintaining and enhancing their advanced-level skills?

Educators, parents, researchers, students, and the community at large want to be informed about students' progress in the local schools. How are our students doing? Test data should serve various audiences. Resulting data aids decision-making about curriculum, instruction, and educational resources. Of course, test data over time is just part of the overall picture of how content, skills, and pedagogy come together in the learning process. Understanding the level of students' daily performance is critical to planning and maintaining a strong focus on curriculum.

Testing for Accountability

Educators, policy makers, and parents view tests as accountability measures. "Tests of student achievement that can be widely and uniformly administered across schools are the key mechanism by which policy makers hold schools accountable" (Donovan, Bransford, & Pellegrino, 1999, p.

54). Tests often serve as the barometer of local education achievements. School, district, and state reports provide considerable data about progress towards content standards or the percentage of students achieving at high, average, or low levels. Data may be portrayed over several years to show trend lines. At a glance, such portrayals provide information about preset goals. We have considerable experience in measuring factual knowledge and using objective scoring. We often make comparisons of the individual to a larger group of test takers of a similar age or grade.

As accountability measures, achievement tests must be selected based on their connection to the curriculum. To what extent does the scope and sequence outlined in your textbooks reflect the skills assessed on your school, district, or state level tests? Do the objectives of your curriculum reflect content standards in language arts, reading, science, mathematics, history, geography, or the arts? Are you measuring what is actually taught?

Given the availability of content standards developed by various professional organizations, it is easy to review the connections between curriculum and assessment. Note that it is curriculum *and* assessment, not curriculum then assessment. These processes are inextricably linked. As Elmore and Rothman (1999) state "the key is transparency" (p. 3). Administrators, teachers, students, parents, policy makers, and the community-at-large must know what is expected as outcomes of education, how outcomes will be measured, and how results will provide guidance about future learning opportunities. We must

> . . . make explicit the link between standards, assessments, accountability, *instruction*, {italics in the original} and learning. (Elmore & Rothman, 1999, p. 3)

Testing and Performance

The limited definition of tests offered above is not the only source of knowledge gained about student progress and instructional techniques. Our understanding of how people learn and how they transfer their learning is still unfolding. We are also very interested in deep understanding rather than surface, factual knowledge (Donovan, Bransford, & Pellegrino, 1999). We are gaining more and more expertise in measuring the depth of understanding. Newmann and Associates (cited in Elmore & Rothman, 1999) propose an emphasis on authentic pedagogy. They delineate four standards:

> Higher-Order Thinking. Instruction involves students in manipulating information and ideas by synthesizing, generalizing, explaining, hypothesizing, or arriving at

conclusions that produce new meaning and understandings for them.

Deep Knowledge. Instruction addresses central idea of a topic or discipline with enough thoroughness to explain connections and relations and to produce relatively complex understandings.

Substantive Conversation. Students engage in extended conversational exchanges with the teacher or their peers about subject matter in a way that builds an improved and shared understanding of ideas or topics.

Connections to the World Beyond the Classroom. Students make connections between substantive knowledge and either public problems or personal experiences. (Elmore & Rothman, 1999, p. 75)

These four standards seem to be a good blueprint for thinking about the curriculum and assessment connections. They reflect and integrate viewpoints about testing:

> Testing for Mastery of Content and Skills
> Testing for Growth Over Time
> Testing for Accountability
> Testing and Performance

You're having a test! The next time you say or hear this statement, ask yourself some critical questions about the purpose of the test, the scope of the questions, and how you will use the resulting data to improve the curriculum, change instructional techniques, or examine the strengths and abilities of your students.

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- *What is ADHD?*
- *What causes ADHD?*
- *How is ADHD assessed and diagnosed?*
- *ADHD or gifted: Either or both?*
- *Is ADHD included in special education laws?*
- *ADHD and giftedness: Where do we go from here?*

Attention Deficit Disorders and Gifted Students: What Do We Really Know?

Dr. Felice Kaufmann
Dr. M. Layne Kalbfleisch
Dr. F. Xavier Castellanos

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The National Research Center on the Gifted and Talented

Since 1990, The National Research Center on the Gifted and Talented has carried out the research and development priorities established under the Jacob K. Javits Gifted and Talented Education Program. The Javits Act gives highest priority to identifying and serving high potential students who may not be identified through traditional assessment criteria, including individuals of limited English proficiency, individuals with disabilities, and individuals from economically disadvantaged groups. Theory-based models of identification, alternative assessment, programming, evaluation, professional development, curriculum, and intelligence have been the hallmarks of our quantitative and qualitative research portfolio from 1990 to 2000. In addition, the United States Department of Education, Office of Educational Research and Improvement has recognized our Center's dissemination plan for its effectiveness and comprehensiveness.

The National Research Center on the Gifted and Talented (NRC/GT) (2000-2005) is a consortium of 3 Core Universities (Connecticut, Virginia, and Yale). Our current research agenda centers on the theme, Transitions From Potential-to-Performance and addresses research questions such as the following:

1. Are the personality and behavioral characteristics of gifted underachievers more similar to those of underachievers of average ability levels, achievers of average ability levels, or with achievers of high ability levels?
2. To what extent can teachers modify reading practices and curriculum for above average reading students in regular classroom settings?
3. What variables predict high achievement on international assessments of mathematics and science?
4. What are the effects of state testing on schools and teachers relative to curriculum and instruction?
5. What is the degree of consistency between teachers' philosophies about giftedness and classroom practices?
6. What is the impact of differentiation of curriculum and instruction on students from disadvantaged backgrounds and/or students from some minority groups?
7. To what extent will creative and practical abilities be of increasing importance to giftedness, with increasing age and across domains?

In addition to the Core Universities, Senior Scholars at Collaborating Universities have made a commitment to research projects and research-based monographs related to the priorities of the Javits Act.

Our research agenda resulted from a recent needs assessment from educators, policy makers, and the general public. Our agenda is responsive to the Javits legislation. We continue to:

- investigate the causes for disparity in achievement at the highest levels of performance among various racial and ethnic groups;
- study models for increasing the proportion of underrepresented students performing at the highest levels; and
- generate findings and applications that build the capacity of teachers and schools to improve the performance of underrepresented students.

The NRC/GT is committed to high quality research that is problem-based, practice-relevant, and consumer oriented. Finding answers to questions using appropriate quantitative and qualitative methodologies will only impact educational practices and policies if the information is available to target audiences in multiple formats. Therefore, we continue to use the most effective dissemination practices to ensure accessibility of research findings to improve our Nation's schools.

The following abstracts provide an overview of the NRC/GT research studies:

An Investigation of Interventions for Promoting the Achievement of Low SES and Culturally Diverse Gifted Middle School Students

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D. Betsy McCoach
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The underachievement of gifted students represents a loss of valuable human resources for the nation, as well as unrealized fulfillment for the individual. Although a previous NRC/GT needs assessment found that the issue of underachievement is foremost in the minds of practitioners, no national study has focused on interventions for reversing the underachievement of gifted students. For the purpose of this study, we define achieving gifted students as students who perform at or above grade level in reading and math on standardized achievement tests in mathematics and reading. We are selecting a sample of urban and rural school districts

with culturally and linguistically diverse students (Black, Hispanic, and Native American) and students from economically disadvantaged settings. We are focusing our study on middle school students who perform at grade level or above grade level in reading or mathematics from various racial/ethnic groups or economically disadvantaged homes and settings.

Phase one was a review of the literature on this topic with an emphasis on the achievement patterns of minority students. We sought to better understand the achievement patterns of successful students from various racial/ethnic groups. We are analyzing data from the National Education Longitudinal Study (NELS-88) to determine course-taking patterns, results of content area achievement tests, school characteristics, and grades among various racial and ethnic groups; and analyzing data from the Early Childhood Longitudinal Study- Kindergarten Cohort (ECLS-K) databases to determine the characteristics of home and school environments that promote the academic achievement patterns of young children. After identifying successful programs through vehicles such as the National Center for Education Statistics (NCES), we are collecting data through document analysis, interviews, observations, questionnaires, or surveys. The following research questions guide our data collection. What teaching strategies promote achievement in schools where reform movements have been successful? What are the achievement patterns of minority students at risk of school failure? How do interactions between teachers and learners promote achievement? How do school/parent partnerships promote achievement? Do the attitudes of community persons affect the achievement of students? We will also study family patterns (e.g., reading to children, visiting local places of interest, telling stories, playing games) that affect their children's school readiness.

In Phase Two, we investigate different intervention approaches designed to promote the mathematics or language arts/reading achievement of gifted students using one or more of the following interventions: (1) interest-based projects and classroom modifications, (2) self-regulation strategies for students, (3) self-efficacy strategies, and (4) student goal setting and modifying environmental perceptions. We believe that one or more interventions will improve school grades for the subject area in which the student had been identified as underachieving. Development and field-testing of the interventions is underway.

We are seeking classroom teachers and teachers of gifted who would be interested in working with one or two bright, underachieving students to implement one of the treatments in their classrooms. The study would begin in October 2002 and end in April 2003. Participating teachers would also agree to collect a minimum amount of follow-up data during

the 2003-2004 school year. Interested parties should contact our office at 860-486-4678 for more information.

Increasing Achievement and Enjoyment in Reading: The Schoolwide Enrichment Reading Framework

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Del Siegle
University of Connecticut

This proposed 3-year research study complements our other proposed investigation of achievement, builds upon previous studies conducted by the UConn site of the NRC/GT, and relates to our theme of transitions from potential to performance. We are studying reading achievement in students of all achievement levels at the upper elementary and middle school levels.

The first phase of this study is an analysis of early readers through the use of the ECLS-K data documenting the wide range of skills and readiness with which children enter kindergarten. This preliminary research indicates that the level of children's skills at kindergarten entry appears to be related to parental educational status, as children whose mothers are well educated come to kindergarten with more academic skills, such as recognizing letters, beginning sounds, and reading storybooks.

This secondary analysis of the ECLS-K database examines a nationally representative sample of 22,000 first-time kindergarten students in approximately 1,000 kindergarten programs throughout the United States. Specifically, multilevel modeling techniques will be used to identify teacher-level and school-level contextual variables that appear to promote academic excellence. To ascertain how these variables contribute to the acceleration or deceleration of individual academic growth trajectories during primary grades, we will follow the growth of students throughout kindergarten and first grade, paying particular attention to reading skills and increasing achievement in reading.

We are conducting school and classroom visits to study programming for talented readers in urban and suburban elementary and middle schools. We are studying such areas as: whether regular curriculum reading practices are enriched, whether acceleration is in use, the reading practices in selected classrooms, the available resources for talented readers, and the nature of the reading program currently in use for talented readers.

In the second phase of the study, the Schoolwide Enrichment Model (SEM) will be used as a vehicle to increase both reading achievement and enjoyment in reading. The SEM

seeks to develop talents in all children and encourage enjoyment in learning with the use of three components: the Total Talent Portfolio, curriculum differentiation techniques, and opportunities for enrichment teaching and learning for students in areas of advanced ability and interest.

We will apply the SEM philosophy to reading instruction in several school districts to develop a SEM Reading Framework. We will compare the reading achievement of students of various reading achievement levels with a comparison cohort of students using traditional reading programs in districts with diverse student populations and schools. This mixed methods design uses quantitative methods for the database analyses and to study differences in reading achievement and enjoyment of reading before and after the SEM Reading Framework intervention. Qualitative methods will be used to enhance quantitative data collected about enjoyment of reading and types of independent reading pursued both in and out of school.

Advanced Placement and the International Baccalaureate Programs: Factors Enhancing or Inhibiting Student Enrollment and Achievement Across Racial, Socio-economic and Ethnic Populations

Carolyn M. Callahan
Tonya R. Moon
Carol A. Tomlinson
University of Virginia

Little attention has been given to exploring the reasons for the growing achievement gaps between the highest achieving Black and White students at the secondary level. These differences, combined with the poor performance of the most advanced American students in international comparisons—most recently the TIMMS study—suggest a need to closely examine the programs/curricula serving gifted students in secondary schools. First, using the TIMMS data, we will examine student, teacher, and school factors that may predict differential patterns of achievement across racial and ethnic groups. Then we will qualitatively examine the reasons underlying choices made to enroll (or not enroll) in Advanced Placement courses or International Baccalaureate programs by minority students, the match between learners from non-dominant cultures and the curriculum of these programs, and the engagement of learners from differing racial, socio-economic, language, and gender sub-groups enrolled in AP and IB courses. We will examine, in particular, recruitment strategies, instructional strategies or curricular adaptations that engage minority and impoverished learners in these advanced curricular options, the ways in which classroom or school climate affect the decisions made by students, and any other themes that emerge from interviews and observations.

State Standardized Testing Programs: Their Effects on Teachers and Students

Tonya R. Moon
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Carol A. Tomlinson
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Until the late 1970s, standardized testing had little effect on instruction. However, since the minimum competency movement of the 1970s, the importance placed on standardized tests has increased. The central theme of this reform effort is the need to raise academic achievement of all learners. The intent of this study is twofold: (1) to investigate the impact, if any, of state testing initiatives on the potential for challenging instruction for all students, including gifted students, economically disadvantaged students, limited-English proficient students, and students with disabilities, and (2) to investigate the impact, if any, from the teachers' and students' perspectives of the state testing initiatives on all students (including high performing minority students). Specifically, the study seeks to determine through quantitative and qualitative methodologies, teacher and student factors that encourage and/or discourage complex and in-depth learning.

Multiple Case Studies of Teachers and Classrooms Demonstrating Competent Application of Principles of Differentiated Instruction to Address Academic Diversity

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University of Virginia

In recent years, there has been a burgeoning interest in creating classroom settings attentive to student variation in readiness, interest, and learning profile rather than assuming a single approach to teaching and learning serves all students well. This approach, called differentiation of instruction, is still relatively rare in schools. The goal of this project is to develop a series of case studies that describe teachers who are effective in differentiating instruction, thus aiding the transitions of many other educators who seek to make their classrooms more effective learning places for students whose culture, gender, economic status, experience, and talents vary widely. The multiple case design will examine classrooms in three sites in three states involving a range of grade levels from primary through high school. The focus of the case studies is teachers who promote academic success in students with minority and low economic students. The central goal of the study is describing approaches, strategies, and classroom routines that appear to lead to academic success with these learners.

Using Case-Based Instruction to Identify Talent in Primary Grades

Tonya R. Moon
Carolyn M. Callahan
Carol A. Tomlinson
University of Virginia

Primary school is a time of great transitions for learners. Transitions occur when students come from a predominantly unstructured childhood environment into the structured beginnings of primary school. Once in the primary grades, the school experience is largely composed of student-centered and hands-on activities. Students transition from the comfort of this nurturing environment to a more content-driven school experience at 3rd grade, resulting in what is commonly referred to as the 3rd grade slump. During this transition phase, talented students, particularly those from less obvious talent pools, are more likely to fall through the cracks in traditional gifted identification models and programs. It is the intent of this study to work with primary level teachers in changing their instructional practices to be more responsive to the transitions students experience through case methodology resulting in model lessons which can be used for identification purposes.

Transitions in the Development of Giftedness: Main Study

Robert J. Sternberg
Elena L. Grigorenko
Yale University

The purpose of this research is to assess the factors that lead to success in transitions of giftedness. In using the term *giftedness*, we refer to individuals who (a) are excellent in work they can or do produce, (b) possess this excellence relative to peers, (c) are able to display this excellence through some kind of tangible performance, (d) can repeat this performance multiple times, and (e) excel in a way that is societally valued. This definition is based on the confluence model of giftedness. What leads some, but not other people successfully to make these transitions in the kinds of expertise they develop? Is it possible that many underserved minority students have the abilities they will need to succeed at high levels in careers, but never get the chance because the educational system fails to recognize their strengths?

We believe that the problem addressed by this study is one of the most fundamental ones in gifted education, in particular, and in education, in general. The problem is how to optimize on the talent of the nation's youngsters, our most precious resource as a nation. Currently, traditional analytic abilities are stressed in the identification of children for gifted education programs. However, our research suggests that creative and practical skills are as important, if not more important than analytical skills to success in life. We have found that even individuals who are analytically and creatively gifted will not necessarily possess the abilities to excel as adults. For example, they may be able to produce creative artwork but not know how to get it exhibited, or write creative stories but not know how to get them published, or compose creative musical arrangements but not know how to get them played. The may fail in later transitions of giftedness because they are ineffective at promoting their ideas.

We propose specific hypotheses posing testable predictions: creative and practical abilities will become of increasing importance with age and that members of underrepresented minority groups will, on average, score more highly on measures of creative and practical abilities than on measures of analytical abilities. To verify these hypotheses, we are looking at individuals in various life stages, employing cross-sectional methods, and across those same life stages, employing longitudinal methods.

There are two groups of participants: (1) evaluators (teachers, parents, college/university professors and instructors, and supervisors) and (2) evaluatees (students and young professionals). The first group of participants will fill out questionnaires and be interviewed regarding the characteristics of highly gifted, gifted but not highly gifted, and nongifted individuals in their area of endeavor. The second group of participants will be assessed for their potentials and demonstrated levels of performance. Participants will be recruited nationwide. We intend to recruit at least 1600 participants, split evenly between all of the grouping criteria detailed in the following paragraphs.

Evaluated participants will consist of three groups of individuals in each of five life stages: (1) middle-school students; (2) high-school students; (3) college students; (4) advanced graduate students; and (5) young professionals.

Within each group, we plan to adequately represent minority groups. Our design will call for the following breakdown: (1) European-American majority-group students; (2) African-American minority-group students; (3) Hispanic minority-group students; and (4) Asian minority-group students.

Individuals in each age cohort will be divided into three general groups, based on evaluation of their performance as: (1) highly gifted (study group); (2) gifted but not highly gifted (comparison group); and (3) nongifted (control group).

We have chosen two areas of giftedness that can be studied at each of the life epochs described above: (1) verbally

oriented (reading/writing) performance; and (2) quantitatively oriented (mathematical/scientific) performance.

Individuals who are evaluated will be assessed for each of the aspects of a confluence model: (1) successful intelligence; (2) domain-relevant knowledge; (3) thinking styles; (4) personality; (5) motivation; and (6) environment. In addition to quantitative assessments, we plan to use qualitative assessments based on interviews. The results of the measures assessing the skills of evaluated individuals within the confluence framework will be compared with the group classification of these individuals to determine which skills are most important to giftedness within any given group. Although we plan to assess the same attributes across age levels, we recognize the inevitable need for flexibility in the way we assess these attributes.

Transitions in the Development of Giftedness: Musical Talent

Robert J. Sternberg
Elena Grigorenko
Yale University

This study is designed to complement the Main Study in the domain of music performance. We chose this domain because it may enable us to generalize our findings by sampling a domain—the arts—that is missing from the Main Study and because it is a domain where straightforward means are available for evaluating success.

The participants of the study will include three groups: (1) current professional musicians who also teach high ability students in the domain; (2) students who attend the program where these musicians serve as instructors; and (3) music critics from the major media. More specifically, at least 20 teachers and 60 students (20 < age 18; 40 > age 19) will be selected from major music conservatories. Ten students at each instructional level (pre-college, undergraduate, graduate) named by more than one teacher at the school as well as those who are chosen randomly from among unnamed students in the school will be interviewed, and will be administered the personality and motivation inventories employed in the Main Study. As with the Main Study, we plan to recruit participants evenly: (1) European-American majority-group students; (2) African-American minority-group students; (3) Hispanic minority-group students; and (4) Asian minority-group students.

Each of the participants will be interviewed with a structured interview. The purpose of the teacher interview, which will be conducted first, would be to identify the variables associated with elite level talent used to admit students into the selective pre-college program, designed to serve children

with prodigious musical gifts, as well as to the conservatory, which offers Bachelor's and Master's degrees in music performance. The purpose of the student interviews will be to determine how well students' personality and motivational characteristics and conceptions of the variables central to transforming their high level talent into marketable professional level skill matches those enumerated by the teachers and critics. It is hypothesized that those students whom teachers have identified as most successful will be able to articulate the variables most closely associated with success expressed by the instructors and critics, and that a key explanation for that will be in the nature of the teacher-student relationship. The hypotheses will be tested by monitoring employment and professional opportunities displayed by participating students over the course of the study.

Important influences on the development of musical talent are lost to our observation if they are not "caught" along the way. Longitudinal studies designed to test the prediction of eminence from childhood potential can be inefficient because few productive adult creators will emerge from these groups. A more promising longitudinal approach is to identify groups of individuals who have already demonstrated achievements in a domain that retrospective studies have suggested closely precede the emergence of creative eminence. This study employs such a short-term longitudinal study design.

The interviews will be conducted in-person. Students will be asked: (1) about their early musical training; (2) how their present teacher was selected; (3) what the audition process was like for them; (4) the kinds of tacit knowledge they received from teachers; (5) how they deal with competition; (6) relationship with peers who share the same teacher; and (7) what qualities they associate with brilliant performance in their instrument domain.

Faculty perspectives on the following topics will be solicited in order to complement student responses to various facets of the talent development process: (1) their background and training; (2) philosophies and goals for instruction; (3) how they recognize talent and their ideas about the sources of talent; (4) how they plan for individual students; (5) how they prepare students for competition; (6) how and if they attend to student relationships with one another; (7) counseling of most and least successful pupils; and (8) sources of the tacit knowledge they share with their pupils.

We hypothesize that the same attributes hypothesized in the Main Study to lead to success will also lead to success in this study. These attributes are successful intelligence (analytical and especially creative and practical abilities), knowledge of

music in general, and performance of the chosen instrument in particular, styles, personality, motivation, and environment. For example, musicians need the creative intelligence to perform pieces in a way that creatively distinguishes them from other performers, and the practical intelligence to know what kinds of creative innovations are likely to be well-received by the public and what kinds are not likely to be well-received. Musicians need to surmount tremendous obstacles (e.g., rigorous practice schedules, critics, occasionally displeased audiences, serious competition) to succeed, and they have to take risks in their careers to get ahead. They also need a supportive environment that helps their musical talents flourish.

Transitions in the Development of Giftedness: Learning Disabilities and Giftedness

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This study is a targeted extension of the Main Study addressing issues of transitional periods in gifted children with learning disabilities. Children who are both gifted and who have a learning disability have unique needs that are usually overlooked by the public educational system. These children may have excellent creative or practical skills that are not assessed by traditional educational methods. Many people have difficulty comprehending that a child can be gifted and also have learning disabilities. As a result, children with special needs that result from such "uneven" profiles of both their high abilities and their learning problems are rarely identified and are often poorly served. For example, Tallent-Runnels and Sigler (1995) examined whether gifted students in Texas who had learning disabilities were being identified for gifted programs. They discovered that 19.7% of all districts surveyed reported selecting gifted students with learning disabilities for gifted programs.

In this study, we propose, in collaboration with the New Haven School District, the Hamden Eli Whitney Museum, and the Yale Art Gallery to: (1) suggest a set of criteria for identifying gifted children with learning disabilities; (2) develop an after-school and weekend program for gifted children with learning disabilities; and (3) use the design of the Main Study to investigate which of the three proposed models (*g*-based, analytical+creative, successful intelligence) will best fit the pattern of performance in this population of children with special needs.

To match the design of the Main Study, we will attempt to identify gifted children with learning disabilities in grades 5-6, and 11-12. We intend to recruit at least 80 students (about 40 per age group—middle school and high school students).

The sample inclusion criteria will be (1) reading or mathematics (or both) specific disability; and (2) exceptional talents in at least one other area of endeavor (academic or nonacademic).

Participants in this program will complete the assessments detailed in the Main Study. The administration of the assessments will enable us to profile detailed and systematic descriptions of the cognitive strengths and weaknesses of the gifted children with learning disabilities. Such profiles will enable us, in collaboration with the Whitney Museum and the Yale Art Gallery, to develop an intervention program for children with gifted-disabled cognitive profiles. The intervention program will be designed as an after-school and weekend program for children from the New Haven public schools who have been diagnosed with LD (specifically, reading disabilities and math disabilities), but show exceptional achievement in at least one other area of endeavor (i.e., music, language arts, arts, sciences). The intervention program will be based on the theory of successful intelligence and will be designed to meet the specific needs of gifted children with learning disabilities by capitalizing on their strengths and compensating for their weaknesses. Both the Whitney Museum and the Yale Art Gallery have extensive experience in creating educational programs for children. The main purpose of this program will be to ensure that students who are gifted and have learning disabilities receive the intervention needed to help them reach their full potential.

Specifically, the program for children with mathematical disabilities will be developed and implemented in collaboration with the Whitney Museum and will capitalize on practical and creative approaches to teaching mathematics, but also will include more traditional teaching for analytical and memory-based abilities. The program for children with reading disabilities will be developed and implemented in collaboration with the Yale Art Gallery and will capitalize on practical and creative approaches to teaching reading, but also will include more traditional teaching for analytical and memory-based abilities.

Thus, this study will allow us to: (1) validate the findings of the Main Study in a population of gifted children with learning disabilities; (2) investigate cognitive profiles of strengths and weaknesses in gifted children with learning disabilities; and (3) produce a package of materials that can be used in intervention work with a gifted population with learning disabilities.

References

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Effective Coaching: Helping Teachers Address Academic Diversity

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Teachers possess individual needs, biases, beliefs, and interests, all of which influence their understanding of professional development initiatives. The life of a teacher—the myriad of classroom details, student and parent issues, not to mention their own personal lives—further impact their ability to accept the invitation to adopt new practices. Subsequently, these and other factors determine whether teachers translate the "message" into changed instructional and assessment practices in their classrooms.

In a study for The National Research Center on the Gifted and Talented (NRC/GT) at the University of Virginia, researchers sought to examine teachers' responses to individual coaching as one part of a larger project investigating academic diversity in the middle school. In 6 middle schools across the country, teachers were challenged to address students' academic diversity through one of two treatments: differentiated instruction or differentiated performance assessment. Targeted teachers participated in 3 years of professional development coupled with individual coaching sessions. Coaches in the project—university professors, district coordinators, retired teachers, and graduate students—possessed knowledge of differentiation and/or performance assessment and had experience working with teachers. Based on the individual schools, coaches faced unique challenges and various amounts of available resources. In the 3 differentiation sites, coaches worked with teachers to identify areas of their teaching that would be most aligned with differentiated units, lessons, and activities. Coaches and teachers worked to determine clearly focused objectives for specific units and lessons, to identify appropriate pre-assessment strategies or tools, and to determine the most appropriate instructional strategy to meet the wide range of learners' needs. Coaches and teachers discussed classroom management strategies, and worked diligently to ensure successful implementation. Some teachers were more open to coaching than others; some brought specific issues and requests to meetings, such as reconciling test preparation and differentiation or learning more about curriculum compacting. While specifics varied across settings, several things remained constant: coaches assisted with resources, information, and support, but the teachers themselves created and used the differentiated materials.

In the 3 performance assessment sites, coaches worked with teachers to identify areas in their curriculum that may be suited for a performance assessment task. Coaches probed teachers' thinking about the units, and brainstormed possible authentic tasks to demonstrate students' mastery of objectives. Hypothesizing that teachers would increase the use of performance assessments if the materials were created for them, project staff wrote differentiated performance tasks and rubrics—embedding the state standards and guidelines into each task—and presented the finished materials to the teachers for feedback and classroom use. Through the process, some coaches worked with individual teachers to develop their own performance assessments.

Roles Coaches Play: Relationships Between Coaches and Teachers

Coaches assumed multiple roles throughout their tenure at the site, none of which were mutually exclusive. The extent to which coaches assisted teachers in preparation of differentiated materials versus preparing materials to teachers' specifications varied by treatment site. Other variations in coaching approaches included individual style, philosophy, and beliefs about teaching and learning. Coaches approached the challenge of delivering new information to teachers in various ways and with differing goals in mind. Some coaches sought large numbers of involved teachers; others were less concerned with numbers of participating teachers, but instead sought a high degree of technical accuracy from the teachers who participated. Some coaches valued the personal relationships and positive interactions with the teachers. Other coaches valued teachers' positive reactions to the message the coach delivered. They believed it was important to be liked and valued by the teachers. A role assumed by some, was that of "savior" or "rescuer." "Savior" coaches took pride in the offerings they provided: liberating teachers from unpleasant previous circumstances, resourcefully locating needed materials and supplies, artfully negotiating more livable working conditions, or finding excuses to get teachers out of district-level workshops or requirements. "Savior" coaches endeared themselves to their teachers by championing the teachers' causes.

> Gretchen repeatedly heard teachers tell her how much they needed more planning time before they could begin to try these differentiated strategies in their classrooms. When Gretchen arrived at the school this month, she made a beeline for the principal's office. She explained to the principal how teachers constantly bemoaned the need for additional time to develop and implement differentiated lessons they were hearing about. She persuasively argued the case for additional planning time during school hours for the teachers participating in the study. Before the end of her visit, she made a point

to share with her teachers how she secured them this valuable resource. *(From Coaches' field notes)*

A role assumed by other coaches was that of "cheerleader." "Cheerleader" coaches generated enthusiasm for the project as a whole. Participation at any level was encouraged, affirmed, and celebrated. "Cheerleader" coaches spent great amounts of time writing personal notes and cards to the teachers with whom they worked. Each note was personalized to encourage the gradual risks teachers undertook in their classrooms. Additionally, "cheerleader" coaches supplied cheerful tokens and incentives to further bolster teachers' positive attitudes about their efforts and the project in general. "Cheerleader" coaches sought continued involvement by increasing teachers' confidence about the unknown, and applauding each step they took in the journey, no matter what the direction.

> Melanie, in her third year as the coach at a performance assessment site, sat with the seventh grade team of teachers as they sketched out the second semester plans. The teachers debated issues and topics such as field trips, when to schedule the dance, and what collaborative project might make sense to work on. Melanie perked up her ears at the possibility that these teachers might suggest a performance task, without her instigating the idea. After discussing the project for several minutes, one teacher suggested the use of a rubric. Melanie was jubilant. "A rubric! They finally thought about using a rubric!" She realized it was a small step, especially given the amount of time the school worked on assessment, but she was thrilled nonetheless. *(Compiled from Coach's interview)*

Another role played by coaches was that of "best buddy." "Best buddy" coaches entered the lives of teachers, emotionally and socially. These coaches identified themselves as peers, equals in the process, despite the difference in roles. "Best buddy" coaches sought to know and assist the teachers in a holistic sense, instead of limiting contact to the scope project objectives. It was not uncommon for genuine friendships to develop between "best buddy" coaches and the teachers with whom they worked, complete with meeting the teacher's family members, joining the teacher's family for dinners when in town, and starting the day "catching up" over a cup of coffee. The personal connection between coach and teacher ensured continued access to the teacher's classroom to witness the journey towards change. Further, it is likely that the teacher will continue on the journey as a sign of friendship and confidence in the coach. However, it does become a more challenging task for the coach when he/she is required to give critical feedback to the teacher.

> Rachel [the coach] turned to catch Lisa's attention, an eighth grade math teacher, as she walked out of the room after the observation. She pantomimed drinking a coffee cup and signaled with her head that she'd meet her for a cup of java after the day was over. The two women had a great deal in common they realized over the year, and would spend as much time gossiping about other things as talking about school. *(Compiled from Coach's field notes)*

For other coaches, personal relationships were not critical to the process of coaching. These coaches believed the message of differentiation or performance assessment was more critical than the messenger. While these coaches did not do anything to hinder a collegial working relationship, they saw no value in cheerleader type enthusiasm, personalized messages of inspiration, or a need to interfere in school-based issues such as planning or materials.

> Pat [the coach] made an appointment to work with Ms. Borden, the 7th grade science teacher, at a time when the students were out of the classroom in enrichment classes. Pat listened as Joan vented with anger and frustration about the extensive time requirements of the performance assessment as written. She didn't take the criticisms personally; the frustration . . . from the teacher was about assessing students in science, not about the teacher or the coach. Pat merely listened to the angry words and then set about to modify the performance assessment so that it better worked with Joan's teaching timeline. *(Compiled from Coach's field notes)*

Expectations of Coaches

Coaches varied in their expectations for their teachers and for themselves, their perception of the initial goal of coaching, and their approach to resistant and struggling teachers. For some coaches, the need to be liked was critical. This need for a sustained positive relationship, and continued invitations into the teachers' world superceded the need for full actualization and technical accuracy of differentiated lessons or differentiated performance assessment. For other coaches, being liked was of little concern: these coaches strived for excellence in the implementation of the approaches. These dichotomous views are represented in the vignettes of two coaches: Alexandra and Bettina.

Coach Alexandra

Coach Alexandra is highly motivated by the personal relationships she develops with the teachers in her school. She works incredibly hard to schedule her visits so she can observe and coach as many teachers as possible and still have time to attend team meetings and listen to the issues and concerns her teachers raise. During the last visit, she found time to attend a field trip with the 8th grade team, which gave her many new insights into the life of 8th grade

teachers and students. She wants teachers to believe in differentiation; therefore she does whatever it takes to find something they can do and feel successful. For Alexandra, all teachers can be successful with differentiation if they just try one baby step—she believes her strengths include working with struggling teachers to help them see that they can do it! When she plans professional development for the teachers, she delivers it in small manageable chunks. If individual teachers need to see the "big picture," she can provide that individually instead of overwhelming the whole group with that information. Alexandra reveals her beliefs about coaching in the following statements:

- Teachers need to be sold on the idea and philosophy of differentiated instruction and differentiated performance assessment, entertained in workshops, [and] convinced, and persuaded to change practices.
- To increase the likelihood that teachers will subscribe to the innovation, I need to affirm them where they are, [and] make them feel good about the journey, even if that means affirming efforts that are somewhat misinterpreted, or low-level. After all, it is better than not doing ANYTHING at all.
- If teachers like me personally they will be more likely to subscribe to my ideas. Subsequently, time and effort is spent on establishing and nurturing personal relationships with teachers in hopes of increasing teacher subscribers. I . . . appeal to the emotions of teachers.
- Teachers that continue to make attempts—even surface applications—are successful if they continue to try. For the sake of discussion, effort equals success.
- I will feel good at the end of the year if we convince a great number of teachers to attempt even a baby step towards implementing differentiated instruction and differentiated performance assessment. We can deal with quality control issues next time around.

Coach Bettina
Coach Bettina is passionate about the topic of differentiation and performance assessment, and is quite knowledgeable about the theoretical underpinnings of each model. She provided professional development to the teachers at her school, and some seemed to really understand and agree with what she shared, while others seemed put off by the work that was required to do each well. She delivered the whole picture of performance assessment. If individual teachers needed smaller steps, she helped because she did not want to hold the whole group back. For the teachers who were interested, she worked tirelessly to help them plan, create, or implement curriculum or assessment for their classes. For the teachers who were not interested or resisted the message, she simply let them go—figuring it was not worth the trouble

to try to force herself on those who did not have the capacity or interest to change. Bettina reveals her beliefs about coaching in the following statements:

- The message of differentiation and performance assessment is powerful and should be the determining factor in teachers' decisions to subscribe—not by cajoling and convincing or appealing to the emotions of teachers.
- The message is more important than the messenger. Subsequently, time and effort are spent on explaining the message, providing examples and applications—not spent on getting the teachers to like me personally.
- It is not as important to have many teachers subscribe to the initiative as it is to have examples of teachers who fully understand and implement differentiation or performance assessment accurately and at a high level.
- Teachers who try should be affirmed, but they also need to have feedback about how to improve. There is no benefit in affirming inaccurate understandings about the initiative in the long run.
- I will feel good at the end of the year if we observe quality efforts relative to differentiated instruction and performance assessment even if it is only with a small number of teachers. Consequently, some students will have much richer instruction and assessment and we can deal with increasing our numbers next time around.

Effective Coaching: Striving for Middle Ground
Effective coaching has attributes of both Alexandra and Bettina, but aspires to a middle ground supportive of the efforts of teachers, and still insists on high quality for their efforts. Before one can embark upon the journey of coaching, it is critical that coaches understand the purpose and vision of the end goal. It is likely (and perhaps even desirable) that the vision and end goal may be modified before the end, but having an end goal throughout the process ensures that progress is measured. Coaching necessitates consideration of (a) the personal style of the coach; (b) a careful analysis of the school culture; (c) an understanding of the needs of individual teachers; and (d) an understanding of how individual teachers fare within the school culture. Coaching should be adjusted according to these factors, but it is important to maintain high expectations across the entire school community. Coaches should:

1. Establish positive professional relationships with teachers, administrators, and the school community. At various times throughout the journey, effective

coaches will be required to compliment and praise, as well as critically analyze teachers' instruction and provide thoughtful, corrective feedback. Entering into the coaching relationship with expectations of developing personal friendships may prevent coaches from objectively and accurately assessing the progress or regress of teachers.

2. Strive for a balance between high teacher subscription to the change effort and high quality efforts. At times in the coaching process, the balance may tip towards one end or the other, but overall balance is desirable. For example, when first initiating instructional changes, a savvy coach may try to make the initial steps seem less daunting. As teachers gain experience in the strategies required for change, coaches may analyze efforts more carefully to ensure that teachers fully understand the techniques, and recognize ways to further improve.

3. Strive for a balance between a focus on the message and on the messenger. Support is valuable to teachers as they embark upon the journey into the unknown; and knowing a coach is expecting to see an innovation in action can serve as an accountability strategy for teachers. While it is important for coaches to be liked and respected, the message is also critical. Coaches who worry about "being liked" sometimes avoid the necessary discomfort often present with changing ideas. Slightly uncomfortable teachers, faced with challenges without ready answers, may not initially appreciate the experience and may even express dislike about the coach and the coaching methods. Yet, it may lead to re-examination of the message and their individual beliefs about teaching and learning. Effective coaches, like effective teachers, are not afraid to present challenging circumstances, perhaps just beyond the learners' comfort zones, recognizing that a professional relationship can withstand temporary discomfort.

4. Respond to the individual context surrounding each teacher's change journey. All teachers—like all students in their classrooms—are not the same, and as unique individuals, benefit from different kinds of learning experiences. Effective coaches pre-assess teachers' understandings about the innovation in a non-threatening way, and then provide appropriately matched experiences.

5. Investigate multiple levels of a teacher's context. Coaches quickly recognize that the context surrounding teachers varies greatly across schools; some schools are rich in resources and support, others are impoverished. Effective coaches further notice the subtleties of context that vary across grade levels and even individual teachers. Beginning teachers have different coaching needs than experienced teachers, and teachers with strong content knowledge are able to leap farther than teachers teaching out of their content specialties—an ever increasing phenomenon in understaffed middle schools. Effective coaches assess macro-context and micro-context and modify support accordingly.

6. Provide services of value to the school community. The most important thing a coach can do to increase the likelihood of change in response to academic diversity is deliver the goods. Offer only the assistance that is reasonable and feasible to provide; arrive on time and prepared to work; be selfless about personal agendas; and be open to more than one way to accomplish the goal.

These approaches to coaching sound remarkably similar to the challenges issued to teachers in heterogeneous classrooms—and bear many of the same management and implementation challenges. Effective coaches balance teacher-learners' interests and needs with contextual constraints, recognizing that differentiation of coaching—like teaching—is not a perfect science.

Fund Drive for the Dr. A. Barbara Pilon Poetry Contest

For the last twenty-some years of her teaching career, Dr. Pilon, a beloved member of the Department of Language and Literature from Worcester State College, was on dialysis for severe kidney disease. Her energy and spirit made her an inspiration to those of us who knew her secret. Her energy, imagination, humor and warmth earned her a following among students. She passed away a year ago. The endowment that bears her name was established by her husband to keep her name alive on campus and to continue to encourage causes she cared deeply about. Commemorating her interest in students and dedication to education, the endowment supports an annual scholarship for a Worcester State College English major who intends to become a teacher. As a tribute to her joy in language and creative writing, the endowment also created the Dr. A. Barbara Pilon Poetry Contest and made it possible to continue running the annual Kathleen Downey Short Fiction Contest, both open to all Worcester State College undergraduate students.

English major? Veteran of Mythology? Introduction to Literature? Fantasy, Faerie and Folk? Maybe you even remember Dr. Pilon from your course? If you remember her love of literature and of her students, you may want to join her colleagues by making a contribution to the Dr. A. Barbara Pilon Endowment. Writer? Friend of the arts? Teacher? Even if you didn't have the pleasure of working with Dr. Pilon, please consider supporting this initiative to continue her legacy. Checks, made out to the WSC Foundation with "Pilon Fund" noted in the memo field, can be sent to Worcester State College - Office of Development - 486 Chandler Street, Worcester, MA 01602.

Thank you in advance for supporting the legacy of this remarkable educator and friend.

NRC/GT's Work in the Past Five Years

Robert J. Sternberg
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Underlying our work is the view that abilities represent a form of developing expertise—in other words, that abilities are flexible and modifiable and can be developed into expertise, no matter the starting level. Ability tests can only measure developed levels of competencies. They never show all of which a student is capable.

We believe that many schools metaphorically shine a spotlight on just one kind of student—the student who excels in conventional memory and analytical abilities. Yet, other kinds of abilities—in particular, creative and practical abilities—are at least as important for success in life. Moreover, with proper teaching, they can be important for success in school, too. In other words, many students can achieve at substantially higher levels than they currently do if they are taught in a way that matches, at least in part, their pattern of abilities.

The primary goal of our previous 5-year research project was to compare the efficacy of the theory of successful intelligence to alternative models for teaching. Teaching for successful intelligence involves teaching students analytically, creatively, and practically in order to help them to capitalize on strengths and, simultaneously, to compensate for or correct weaknesses. The alternative models are teaching for critical thinking and teaching primarily for memory. We have done studies now at the elementary and secondary levels in all academic subject-matter areas. Our

outcome measures are both conventional achievement tests, as well as performance assessments examining analytical, creative, and practical kinds of achievement. We have tested several thousand students in diverse settings.

- Our main finding is that teaching for successful intelligence is more effective than alternative models of teaching. So far, this finding holds up regardless of grade level, subject-matter area, socioeconomic level, ethnic identity, or type of community (rural, suburban, urban).

- A particularly interesting result is that we get this finding even if the outcome measure is memory-based. In other words, we find that even if one's goal is simply to enhance memory learning, teaching for successful intelligence still is the most effective form of teaching. This is because teaching for successful intelligence enables students to (a) capitalize on strengths, (b) compensate for or remediate weaknesses, (c) encode material in multiple ways to enhance access to that material, (d) rehearse material to a deeper level, and (e) motivates teachers and students more.

- Indeed, in affective assessments, we have found that, on average, both teachers and students are very satisfied with our methods of teaching. So, we not only get superior instructional outcomes, but excellent affective outcomes as well.

- It is further of great interest that, when we measure students' abilities, although White, middle- to upper middle class students turn in better performances on the analytical ability measures, other students (of diverse economic, ethnic, and educational backgrounds) do as well and sometimes better on measures of creative and practical abilities. We believe that this is because they come from backgrounds that force them to develop their creative and practical skills, whereas other students may have the luxury of focusing on analytical (and more academically oriented abilities).

- Sometimes, students do not show their abilities because they believe they will not be valued. In one study, for example, we encouraged students in their projects to think creatively or practically. Our concern was that students often do not think creatively (or practically) because they believe that such thinking will not be rewarded. We found that students indeed showed higher levels of creative and practical thinking when encouraged to think in these ways. So students may have the abilities, but find themselves in classroom settings that do not elicit the abilities.

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