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ABSTRACT

This document consists of three consecutive but unnumbered issues of a newsletter from the National Research Center on the Gifted and Talended (NRC/GT) containing articles on the education of gifted and talented students: "NRC/GT Destination: Around the Corner" (E. Jean Gubbins); "New NRC/GT Studies for Year 5" (on implementing enrichment clusters, underachievement among Black youth, instructional practices in middle schools, and achievement among American Indian students); "Examining a Tool for Assessing Multiple Intelligences" (Cheryll M. Adams and Carolyn M. Callahan); "Guiding the Development of Mathematically Talented Students" (M. Katherine Gavin); "Three Models of Curriculum for Gifted and Talented Students" (Bruce N. Berube); "Talents Unveiled and Nurtured: Words & Images" (E. Jean Gubbins); "Javits Act: Charting Directions" (E. Jean Gubbins); "Identifying Traditionally Underrepresented Children for Gifted Programs" (Dennis P. Saccuzzo and Nancy E. Johnson); "Gender Differences between Student and Teacher Perceptions of Ability and Effort" (Del Siegle and Sally M. Reis); "Unique Identification for Unique Talents" (Bruce N. Berube); "Classification Procedures for Gifted/Learning Disabled Students: A primer for Parents" (Mary Rizza); "Reaching the Destination" (E. Jean Gubbins); "Multiple Intelligences Help Teach Culturally Diverse Learners" (Carol Ann Tomlinson); "A Follow-Up Study of the Interaction Effects on the Classroom Practices Survey" (Scott W. Brown and others); "The Paradox of Academic Achievement of High Ability, African American, Female Students in an Urban Elementary School" (Jann Harper Leppien); "Effects of Teacher Training on Student Self-Efficacy" (Del Siegle); "Regular Classroom Practices with Gifted Students in Grades 3 and 4 in New South Wales, Auystralia" (Diana Ruth Whitton); "The Successful Practices Study" (Karen L. Westberg and Francis X. Archambault, Jr.; and "Motivating Our Students: The Strong Force of Curriculum Compacting" (Heather Allenback). Some articles contain references. (DB)

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NRC/GT Destination: Around the Corner

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It seems like a few months ago, rather than years ago, that I penned an article for the *NRC/GT Newsletter* entitled "NRC/GT Destination: So Near and So Far." We have accomplished so much since the fall of 1992 that it always amazes us. The level of productivity and the ability to get the word out about the emerging research results have been remarkable feats. We could only accomplish this by the cooperation of many of you in our network. There have been so many times when we have provided you with documents that you have reproduced through your local newsletters or journals. We truly appreciate your involvement in the NRC/GT dissemination plan.

I rifle through my files and note an article by Joe Renzulli for *Gifted Child Quarterly* (Spring 1991). In the article entitled "The National Research Center on the Gifted and Talented: The Dream, the Design, and the Destination," Joe captured the essence of what the Research Center could become over five years. We have been fulfilling the dream designed several years ago and this fulfillment has been possible because of the quality of the research studies implemented across the four universities, as well as through the help of our Consultant Bank Members. Our Consultant Bank Members have prepared commissioned papers and

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conducted Collaborative Research Studies. In the *Gifted Child Quarterly* article, Renzulli stated:

> A major conviction underlying the NRC/GT is that research in an applied field must be grounded in the realities of schools and classrooms and must be accessible and meaningful to those people who work and study in them. A guiding principle for the Center, therefore, is that all research and dissemination activities must have derived benefits for practitioners and must result in some kind of direct impact upon educational policy, management or practice. At the same time we recognize the essential need for research to be theory based and empirically sound. (p. 75)

We have focused on this conviction, and we will continue to do so as we complete our final year of the Center. Our final year should prove to be as productive as earlier years. We have embarked on a new series of studies that will look at various research questions using qualitative and quantitative methodologies. We hope to gather information on learning, teaching, staff development techniques, and achievement and underachievement issues. Abstracts of the four new studies that are being implemented in Year 5 of the NRC/GT are summarized in this newsletter.

While we are engaged in the new studies, we continue to implement and finalize other projects. Everything that has reached its completion is shared with you. Several projects have been disseminated recently. I'd like to highlight some of the more recent products to draw your attention to some practical information that may be of interest to you in your present educational position.

Linda Jensen Sheffield, in her monograph entitled *The Development of Gifted and Talented Mathematics Students and the National Council of Teachers of Mathematics Standards*, has concluded the following:

> Teachers should encourage students to construct their own mathematical understanding and talented students should be encouraged to reach the highest levels of construction.

We also like to take the findings of various projects and apply them to everyday activities and situations in the classroom. One of our most popular approaches to translating theory into practice has been the series of practitioners' guides developed by Del Siegle, Editor. There are a few new ones that are available and more are in production. Some of the more popular ones at this point in time are:

- What Parents Need to Know About Early Readers
- What Educators Need to Know About Gifted Students and Cooperative Learning
- What Educators Need to Know About Mentoring

All of you on our newsletter list will, of course, be receiving these practitioners' guides and you may choose to reproduce them for interested parties. Some highlights of the practitioners' guides are:

What Parents Need to Know About Early Readers—
Precocious readers almost always remain at least average in their academic ability and most may well show advances as they progress through school. For later reading development, the most important aspect of language acquisition is a wide-ranging knowledge of the world and the ability to express that knowledge through language.

What Educators Need to Know About Gifted Students and Cooperative Learning—
Having gifted students in a cooperative group neither helps nor hinders other group members' academic performance. A variety of cooperative learning models have been developed and some are more appropriate for gifted students than others.

What Educators Need to Know About Mentoring—
The benefits of a mentor relationship for a student are both personal and academic. The relationship encourages students to pursue their interests at advanced levels. In a 22-year study of 212 adults, E. Paul Torrance found that those who worked with mentors completed a larger number of years of education and earned more adult creative achievements than persons who did not have mentors.

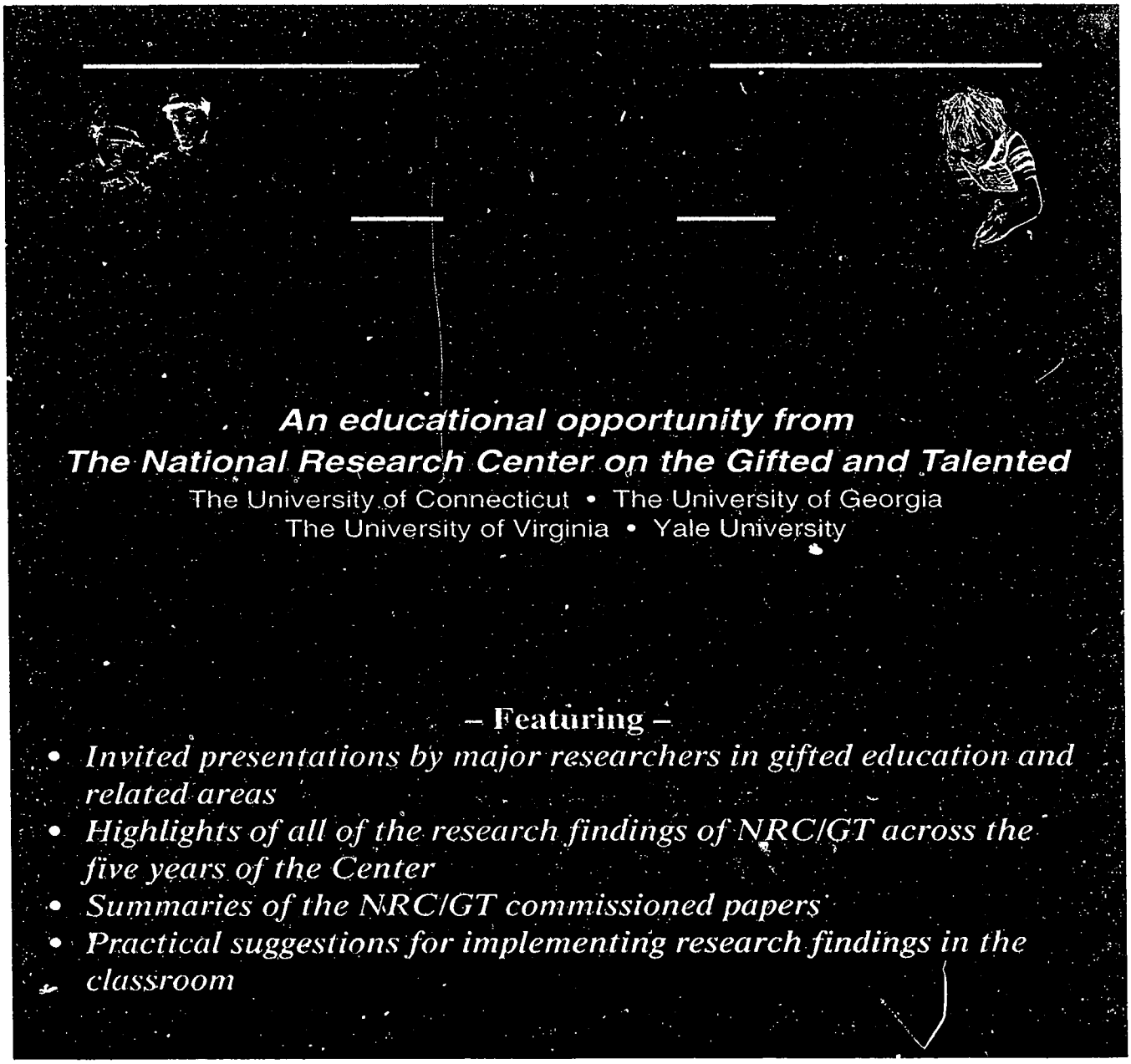
Having concise formats, such as the practitioners' guides, allows people in our network to get the word out to others who may raise questions about various topics and would like a brief overview of the topic that is supported by research facts. The guides have been very popular handouts at conferences and meetings.

We have used a variety of media to deliver the messages from research and continue to explore other alternatives. Whether you prefer words, numbers, visual images, or sound bites, you can access our findings. If verbal presentations are your preferred style of learning, you will have another opportunity to become involved in learning about the findings of the NRC/GT. We will organize a conference highlighting all of our work from March 31 to April 1, 1995. We are currently in the process of finalizing plans for the exact

location, but we know it will be held in Connecticut. The conference entitled "Building a Bridge Between Research and Classroom Practices in Gifted Education" will feature findings from the research studies, as well as invited presentations from those who have been involved with our Research-Based Decision Making Series, Collaborative Research Series, or those who are members of our Consultant Bank.

We hope that you will consider attending the NRC/GT conference, and we are sure that it will be well received. We look forward to distilling our work to such an extent that common themes will emerge across all of our studies that can be translated to practical applications to improve the educational environment for all children. This conference will be an additional way to meet the guiding principle that was set in the article "The Dream, The Design and the Destination," which stated that all of our work should have derived benefits for practitioners and must result in some kind of educational policy, management, or practice. That is our goal and we continue to hit the mark because of an incredible network of researchers and practitioners.

Reference:
Renzulli, J. S. (1991). The National Research Center on the Gifted and Talented: The dream, the design, and the destination. *Gifted Child Quarterly, 35*(2), 73-80.



Year 5

tending the Pedagogy of Gifted Education to All Students

Principal Investigator:
ally M. Reis

the last four years, many of our arch efforts at the NRC/GT have entrated on the use of various

w NRC/GT Studies for Year Five

- Implementing Enrichment Clusters
- Underachievement Among Black Youth
- Instructional Practices in Middle Schools
- Achievement Among American Indian Students

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te niques with gifted and talented s dents across the country. In the urse of this research, questions have isen about whether these types of techniques and strategies can be used with a broader range of students than those normally identified for participation in gifted programs. This study addresses these questions and the challenges presented in the recently released report by the United States Department of Education, Office of Educational Research and Improvement, entitled *National Excellence: A Case for Developing America's Talent*. Consistent with the priorities of the Jacob Javits Act, this study is designed to assess the impact of providing gifted education pedagogy, specifically, a series of enrichment clusters, to the entire population of two schools in economically disadvantaged urban settings with a high percentage of minority students. Enrichment clusters provide a regularly scheduled time for students and adults who share a common interest and purpose to come together. They are based on the acquisition of advanced content through an inductive approach to the pursuit of real-world problems and provide opportunities for multi-age, cross-grade student participation in open-ended investigations of student interest. ntral office administrators in two districts have already agreed to participate in the study. One school from each district will serve as the treatment in which enrichment clusters will be implemented and one school will serve as the control site for comparative purposes. Students in each treatment school will attend two series of enrichment clusters. All students in all four schools will be assessed on their attitudes toward school and learning, and on a number of other teacher and student outcomes. Data will also be collected from parents and teachers related to school satisfaction, use of enrichment strategies, and other related variables. Qualitative data will also be collected on the attitudes of teachers, students, and parents about the implementation of enrichment clusters.

Correlates of Underachievement Among Gifted and Nongifted Black Youth

Principal Investigator:
Donna Ford-Harris

Underachieving gifted and nongifted Black students (n=200) in grades 7 through 9 will be surveyed regarding their perceptions of factors that negatively or positively affect their achievement. Issues related to self-concept (academic, social, physical appearance, and global), racial/ethnic identity, and test anxiety will be examined, as well as the influence of other social and cultural factors affecting underachievement.

The Relationship Between Policy, Beliefs, and Instructional Practice in Middle Schools:

How Do Schools Implement the Philosophy and Recommendations of the Leaders in Middle School Education

Principal Investigators:
Carol Tomlinson
Carolyn Callahan
Ellen Tomchin

The primary objective of this study is to probe the ways in which the current middle school literature on meeting the needs of diverse learners, including the talented, is reflected in the policies, beliefs, and practices of administrators and teachers in those settings. In addition, the literature and the policies, beliefs, and practices will be compared to the research findings of cognitive and developmental psychologists, educators, and sociologists regarding the learning and development of students in the transition years.

The Paradox of Academic Achievement in High Ability, American Indian High School Students

Principal Investigator:
Jann Leppien

Gifted students from culturally diverse populations exist in high schools across the country, yet many do not achieve at a level commensurate with their abilities. It has been suggested that underachievement may be one reason that many young people are excluded from educational programs for high ability students. Despite a call to researchers to investigate the "untapped resources" in children from racial and ethnic minority groups, a paucity of research exists about high ability, American Indians living on or near reservations, and the factors identified by these students that influence their patterns of achievement or underachievement.

This ethnographic study will identify the patterns of achievement and underachievement experienced by high ability, American Indian, high school students. By examining differences between those who achieve and those who underachieve, factors which mediate the achievement of these students will be identified, through participant observation, ethnographic interviews, and document review. Descriptions of how the school experience is perceived by two samples of American Indian high school students, those who achieve, as well as those who underachieve will emerge, as will the factors which influence their beliefs regarding this phenomenon.

Examining a Tool for Assessing Multiple Intelligences

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While many educators have emphasized the need to identify giftedness in young children, there is seldom a concerted effort to identify primary level children for gifted programs (Clark, 1988; Kitano, 1989; Robenzer, 1979; Shaklee, 1992; Whitmore, 1986, 1988). One often-cited reason for not acting to identify young children is the inadequacy of identification procedures to evaluate and assess giftedness currently in use in most school systems. The National Association of the Education of Young Children (NAEYC, 1988) has adopted a position statement on Developmentally Appropriate Practices in Early Childhood Programs Serving Children from Birth through Age 8, which expresses concern about the use of standardized testing for placing young children in special programs and the practice of making decisions based on a single score or measure. The position of the NAEYC is based on agreements that instruments used for such selection are not reliable and valid when used with very young children. Further, teachers are often unable to recognize signs of giftedness in young children and continue to select only students who are high achievers in the classroom (Roedell, 1985; Whitmore, 1982).

Another problem facing educators that cuts across identification of gifted students of all ages stems from the failure of traditional assessment instruments to identify gifted students from the population of economically disadvantaged, limited English proficient, and minority children. Educators have been making recommendations for change to address these issues for two decades and agree that direct observations are useful in identification of disadvantaged and culturally diverse learners. Yet, little has been done to validate new forms of assessment. Clearly, there is a need to identify other reliable and valid methods to assess giftedness in young children, particularly those who are culturally different or economically disadvantaged.

Howard Gardner (1983) expands the definition and assessment of intelligence to include seven separate intellectual domains: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, and intrapersonal. The major thrust of Gardner's theory is that individuals tend to have strengths in specific cognitive functions. According to his theory, individuals are capable of exceptional development in any one or a combination of these seven discrete intelligences. Gardner (1989) further cautions that "intelligences must always be conceptualized and assessed

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in terms of their cultural manifestation in specific domains of endeavor" (p. 6). For example, to assess spatial skills a child might be given a small kitchen appliance or tool from his or her environment to take apart and put back together. One NRC/GT Collaborative School District in Maryland, the Montgomery County Schools, was awarded a Javits grant to pilot an application of Gardner's theory. The project staff of The Early Childhood Gifted Model Program has developed a *Checklist for Identifying Learning Strengths* based on the theory of multiple intelligences, a means of searching for the talents of culturally diverse, economically disadvantaged gifted students. Classroom teachers have been trained to use particular tasks to elicit behaviors relating to the specific intelligences and to use the checklist to identify gifted young children for the program. The checklist consists of seven sections, each corresponding to one of the seven intelligences identified by Gardner. Each section is comprised of seven to eleven statements describing ways that intelligence may be manifested in the child. For example, under the verbal-linguistic heading are statements such as, "Enjoys word play;" "Expresses ideas easily, either orally or in writing;" and "Is a good storyteller or writer." Students high in visual-spatial ability may exhibit characteristics such as, "Chooses to express ideas through visual media;" "Takes things apart and puts them back together again;" or "Can organize and group objects." The observer gives each domain an overall rating of one ("You have not observed these behaviors") to four ("You almost always or always observed them"). A five indicates "No opportunity to observe these behaviors" (during data analysis, these scores were dropped). The observer may also check any of the descriptors that may be particularly strong indicators for the child. An overall rating is obtained for each intelligence. There is also a section for the observer to add comments that might help another teacher plan for the child.

The NRC/GT staff has been collaborating with the staff of the Early Childhood Gifted Model Program in establishing the psychometric properties of the checklist. First, a reliability study was undertaken to establish intrarater reliability and stability for the checklist. In Round One all 365 students in kindergarten through second grade in the schools participating in a pilot study were rated by teachers who had received training in the use of the scales. One month later the names of 10 students were randomly selected from each classroom. These students were rated again by the rater who had observed them previously. One hundred thirty-six students were included in this process.

When the same teacher rated the same child after a one-month interval, the intrarater reliability for kindergarten students were moderately high (ranging from .713 on the logical-mathematical scale to .782 on the spatial scale). Correlations across the two ratings for first grade scores ranged from .496 (music) to .775 (interpersonal). At the second grade level, intrarater reliability ranged from .681 (bodily-kinesthetic) to .811 (linguistic).

These intrarater reliabilities are not high enough to warrant placement decisions about individual children on the basis of the checklist scores alone, but they are reasonable for considering modification of instruction in conjunction with other data a teacher has about the child's achievement. The reliabilities are also sufficiently high to warrant further investigation. We, therefore, looked to see if the seven domains were independent. As expected, and as preliminary evidence of construct validity, scores across domains were not highly correlated with each other. Each domain appeared to be measuring attributes that were unique.

Currently, we are analyzing additional data to establish inter-rater reliability as well as the relationship between this instrument and other measures of intelligence.

The results of the study support Gardner's assertion that the domains appear to be discrete. At this time, teachers in the project are using the results to focus activities for the children by differentiating the curriculum according to an individual child's identified strengths.

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For further information about the checklist contact Dr. Waveline Starnes, Montgomery County Public Schools, 850 Hungerford Dr., Rockville, MD 20850

Guiding the Development of Mathematically Talented Students

A Review of *Windows of Opportunity: Mathematics for Students With Special Needs*

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A Review of
Windows of Opportunity: Mathematics for Students With Special Needs
C.A. Thornton & N.S. Bley (Eds.)

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA 22091-1593

COMMENTARY

In *Windows of Opportunity: Mathematics for Students with Special Needs*, the National Council of Teachers of Mathematics (NCTM) has furnished a professional resource for both regular classroom teachers and teachers of students with special needs, including students who are gifted and talented in mathematics. The educators who collaborated in writing these chapters impart the philosophy of the NCTM Standards (National Council of Teachers of Mathematics, 1989) and share practical, effective instructional strategies for implementation. A particular focus that binds the chapters together is a nurturing of mathematical thinking through relevant, problem-centered instruction. This focus is important to note since teachers, in interpreting the Standards, often zero in on the need for students to "do" mathematics, but are less aware of the Standards' emphasis on the mathematical reflection required for true discovery and understanding. All the authors in the text agree that a classroom environment based on the Standards is one that creates opportunities to discover mathematically talented students. They recognize the importance of a constructivist approach to mathematical investigations and offer many practical examples with extensions focusing on differentiation. The text is divided into three major sections: current issues relating to equitable programs for students with special needs, major curriculum thrusts in mathematics, and promising practices of several existing programs that include, or are designed for, students with special needs.

Focusing specifically on the attention and information given to students who are mathematically talented, let us begin by looking at the chapter "Issues of Identification" by Downs, Matthew, and McKinney. Writing for the regular classroom teacher, these authors present a concise and accurate overview of the major issues in the definition and identification of talented students. Concerns centering around the disparity in defining giftedness by leading theorists in the field and varying interpretations of the federal definition at the state and local levels are discussed. The practical tips offered to teachers to help them recognize talent in their students, especially students who do not fit the stereotype, including economically disadvantaged and underachieving

gifted students, are a breath of fresh air. The authors caution against the sole use of standardized tests in identification, stressing the cultural and gender bias that may be inherent in these tests. Although they list other good alternatives for identification, I found peer, self, and parent nominations unfortunate omissions. Overall, this section is well done and, in summary, the authors offer some excellent advice: "Schools should be oriented toward collecting and analyzing data that will be used for instructional planning as opposed to simply collecting data to justify a label" (p. 69).

Drawing courtesy of the Iowa Department of Education

Another chapter on planning for instruction introduces the idea of developing a Mathematics Individualized Learning Plan (MILP) for all talented math students. Similar to an Individualized Education Plan (IEP) for special education students, this plan would be a year-long program with individualized goals, objectives, instructional materials, and assessment techniques designed by a team including the classroom teacher, the math specialist, the enrichment specialist, and the parent. A detailed MILP for a second-grade girl is included in the appendix with a list of 25 objectives including materials and activities. The numerous resources stress differentiation and high-end learning. The links to other subject areas are interesting and encourage independent projects. However, there should be a greater focus in this chapter, as well as the entire book, on assessing the interests of students and using these interests in program planning. I also think there should be more emphasis on real-world applications, i.e. creating useful products for a specific audience.

Perhaps the chapter that best illustrates what the authors in this text believe and promote as appropriate math instruction for talented students is "Flexible Pathways: Guiding the Development of Talented Students." In this chapter, Eddins and House state "...our responsibility as educators is to offer flexible pathways along which gifted students can encounter rich ideas through challenging, nonstandard learning experiences" (p. 313). They recognize that there are different types of mathematically talented students and they make the important distinction between students who are experts at arithmetic and algorithmic applications and those who are creative problem solvers. They also emphasize that "although...much of what is good for gifted students also is good for their less talented peers, the fact remains that gifted students have special needs that require both an enriched curriculum and a challenging delivery system" (p. 312). The chapter outlines an excellent unit for a secondary math gifted program which relates geometry transformations to matrices. It is filled with challenging activities and extensions in a variety of directions to stimulate mathematical thinking and creativity.

I recommend this text as a good resource for teachers seeking to understand how to meet the needs of gifted and talented math students within the context of the Standards. However, I offer a word of caution. Although there is a focus in many of the chapters on meeting the needs of talented math students in the regular classroom through extension activities, the actual unit of instruction presented as appropriate curriculum for gifted students is designed for an entire class of students in a special school or summer program. The reader must determine how to adapt this instruction to mathematically talented students in a heterogeneous classroom. This is **not** an easy task. In conclusion, since the heterogeneous classroom is becoming increasingly common at all grade levels, I would like to see a chapter added that would specifically deal with instructional strategies beyond extension activities for talented math students in the regular classroom at the elementary, middle school, and secondary levels. The MILP could be included as part of this curriculum. Key features that regular classroom educators should be made aware of include curriculum compacting, cluster grouping, interest centers, independent research projects based on student interest, mentoring, alternative assessment, and classroom management techniques.

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Three Models of Curriculum for Gifted and Talented Students

A review of *Comprehensive Curriculum for Gifted Learners*

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A Review of
Comprehensive Curriculum for Gifted Learners, 2nd ed
Joyce VanTassel-Baska
©1994
Allyn and Bacon,
Boston, MA

Comprehensive Curriculum for Gifted Learners (2nd ed.), by Joyce VanTassel-Baska, is an excellent resource in helping teachers develop challenging curriculum for gifted and talented students in their classroom. The book is unique in that it focuses exclusively on curriculum development and is geared toward all grade levels. Three curriculum models are emphasized throughout the book and each is explained in detail in the first chapter.

The emphasis of the "*content mastery model*" is on the acquisition of knowledge and skills that pertain to a particular subject area. The curriculum is determined in advance, and the goal is to have gifted students progress through that curriculum at their own accelerated pace. With the content mastery model, students are often pre-tested on a particular unit of study to determine what they already know. The information that the student has already mastered is usually eliminated from the unit, and the student is left to pursue the topics that he or she does not fully understand. There are several reasons why the content mastery model has not been implemented to challenge gifted learners. It is often difficult for a teacher to manage a classroom in which many students are progressing at their own pace. Also, educators often oppose using the model because the only modification that is made focuses on the pace of instruction, not the content that is taught. Gifted students do not examine an area of study more fully, they simply do it faster. Although there are some drawbacks to the content mastery approach, many excellent programs have been developed based on its key premises. A good example of this model is the Center for Talented Youth program (CTY) at Johns Hopkins University. The emphasis of this program is on recognizing students with outstanding talents in the field of mathematics. Beginning in the seventh grade, those students who score within the top three percent on standardized achievement tests are invited to take the Scholastic Aptitude Test (SAT) to determine their mathematical precocity. Those who score at or above 500 on the math section of the SAT are allowed to register for a 3-week summer program in which they study advanced topics in mathematics that suit their interests.

The "*process/product model*," as the name suggests, is geared toward developing the skills necessary for students to conduct first-hand investigations of topics that are of interest to them. Emphasis is placed on

developing solutions to real-world problems and concerns. The student produces a product that reflects what he or she has learned about a topic and usually presents the results to an interested audience. This approach is different from the content mastery model in that what is investigated is determined by the student, based on his or her interests. There is no set curriculum. As opposed to having students move quickly through material, emphasis is placed on in-depth study of a particular topic. The basic format involved in such an investigation would be as follows: 1) selection of a topic of interest and a problem related to that topic, 2) review of literature related to the problem, 3) acquisition of the skills necessary to investigate the problem fully, 4) development of tentative solutions to the problem, and 5) the creation and presentation of a product which reflects these tentative solutions and what the student has learned.

The third approach, known as the *"epistemological model"* or the *"concept-based model,"* places primary emphasis on the understanding of systems of knowledge as opposed to particular factual information. The themes and principles that have influenced human thought throughout history are given primary attention. The importance of relating these key issues to a variety of subject areas across the curriculum is stressed. The function of the teacher is to pose questions to the students that will stimulate discussion and lead to higher levels of understanding. An example of this approach is Lipman's *Philosophy for Children* program.

I have spent a significant amount of time describing these three models because they form the foundation of each of the chapters that focuses on particular subject areas. A question that immediately arises after reading about the three models is: "What model is appropriate for each subject area?" The answer to this question is both simple and complex. No one model is appropriate for a subject area to the exclusion of the others, although one model may work particularly well. For example, because the skills in mathematics are often taught in a sequential manner, the content model, with its emphasis on acceleration, may be the appropriate model for most learning situations. On the other hand, the epistemological model might be emphasized in social studies or the humanities where the importance of the key social and philosophical ideas that have shaped history are to be found. The author's primary goal is to incorporate all three models into each subject area so that they form a cohesive whole. As she states, "The synthesis of the content, process/product, and concept models has provided a clear direction for new curriculum work" (p. 12). In the following paragraphs, I will describe how a synthesis of the three areas developed by the author has been incorporated into the area of science.

The science curriculum discussed below was designed to meet the needs of students in grades K-8. The first step in developing the curriculum was to focus on the important concepts that are interwoven into many fields of science. The concepts selected by the author include: scale, systems, change, models, evolution, and reduction. The author uses the "system" concept to illustrate her point. The next step is to elaborate on the important generalizations that are involved in the concept. Such generalizations for the concept of systems include: "All systems have identifiable elements and boundaries" and "All systems experience input and provide output" (p. 203). The generalizations are then applied to particular fields of science such as biology or geology. Units are constructed on particular topics in these fields such as ecosystems or rocks and minerals. During the actual lessons of each unit, scientific processes are developed through hands-on experimentation. Particular content also is covered in each unit. Finally, the main concept is applied to nonscience areas such as economic systems in which particular processes and content are once again taught.

It may at first seem a bit overwhelming for a teacher to develop units that incorporate all three models of teaching in an effective manner. Before jumping into the particular subject areas, the author presents an in-depth outline of how curriculum is best developed. The plan is divided into seven stages which include such important subjects as assessing needs, establishing curriculum development teams, and evaluating what has been developed. One aspect I found to be particularly useful was a description of the steps needed to modify present curriculum to meet the needs of the gifted. Also, suggestions on how to create original units are included. Make no mistake about it, the process of developing curriculum, as envisioned by the author, is no easy task. It would take many hours of hard work and preparation to construct the type of curriculum the author is suggesting. The rewards of developing such a curriculum, however, would be many.

One of the few drawbacks of the book is that it is geared toward experienced teachers who are familiar with curriculum development. I would have liked to have seen more suggestions for inexperienced teachers about how they could attempt to modify the curriculum. Also, very little emphasis is placed on developing a challenging curriculum for all students. Many of the suggestions that are presented could be used with the majority of students which the author does not stress. Overall, the book is excellent and a "must read" for those teachers who are concerned with making significant changes in the curriculum to provide for the talents and gifts of their students.

Talents Unveiled and Nurtured: Words & Images

A review of *Reach for the Moon*

E. Jean Gubbins
The University of Connecticut
Storrs, CT

A Review of
Reach for the Moon
Poems and Stories by
Samantha Abeel
Watercolors by Charles R. Murphy

Pfeifer-Hamilton Publishers
210 West Michigan, Duluth, MN 55802

COMMENTARY

The talents of young students are unveiled in many different ways. Students may have remarkable strengths, accompanied by weaknesses in one or more academic areas. Sometimes we greet this information with questions, and other times we just look at the strength areas and believe that the person will be able to succeed on his or her own as new challenges are brought forth by the school system. It is not uncommon for people to look at a person's talents to compensate for anything that can't be done easily. Over and over we see examples of this happening throughout the school system. Although we think that there are protections built into identifying the strengths and weaknesses of students through various diagnostic and screening tools, it all comes down to a decision made by one or more persons as to what, if anything, should be done to intervene in the child's educational program. If a young student cannot manipulate simple numbers, most times you would seek further assessment of a broader range of skills. This, of course, is not always true.

Let me introduce you to Samantha Abeel, teenage author of *Reach for the Moon* published by Pfeifer-Hamilton. As a young student, Samantha's parents realized that she was very bright. However, she often came home from school very unhappy. When a child enters school we realize that there are many new adjustments that have to be made. Some students are able to meet the requirements of the school day very easily, and others are mystified by the challenges in the educational environment. Repeated unhappiness related to school attendance is usually a marker that something is amiss. Steps are sometimes taken at the early stages, and sometimes they are not. For Samantha, the years went by and still there were some problems. The problems became more apparent in mathematics. She could memorize almost anything and some of her compensation strategies and memorization techniques masked her problems in understanding mathematical concepts. As school got harder and harder, it was clear that Samantha would have a difficult time without outside help. Sometimes that help, of course, is not easy to obtain. Even though Samantha's parents were eager to support her any way they could, a solution was not readily available. Although an evaluation revealed that there were difficulties in Samantha's ability to work with numbers, special help was not

recommended. The comment was "she is so bright, she'll be fine." It was further exclaimed that "be glad it's not a problem with reading. She can always use a calculator."

Such a dismissal of findings from a diagnostic evaluation causes us to question how students and their parents are protected against the educational system. If it weren't for Samantha's mother, who was going to persevere no matter what, Samantha's future would not have turned out as it has at this point in time. Her mother, obviously, was a teacher at heart and realized intuitively that it was important for Samantha to have opportunities to work on her strengths. She was also someone who was willing to go to the next step of contacting the teacher and encouraging her to plan a special program within the regular classroom. Samantha's parents approached the school once again. They were confident that their personal assessment of their daughter's abilities was quite accurate. They insisted that she be assessed and reassessed until a very clear picture of Samantha's abilities emerged. They also invited the involvement of the teacher of students with learning disabilities, the math teacher, the guidance counselor, and, finally, they were given help for their daughter. But, of course, the diagnosis was controversial for some of the people involved.

Artwork reprinted with permission of Pfeifer-Hamilton Publishers

The controversy surrounded the idea that Samantha was indeed gifted, as well as learning disabled. The existence of these two exceptionalities was questioned. Sometimes people thought that they were paradoxical traits. Other times people referred to them as dual exceptionalities that needed attention; recognizing one without the other was not enough.

Ignoring the talents and remediating the disability has been the focus of recent research. Reis, Neu, and McGuire (1994) conducted a qualitative study for The National Research Center on the Gifted and Talented at The University of Connecticut that centered on the accomplishments of 12 college-aged students who were bright, but also had a disability. Most of these students were not identified as having a disability at a young age. Oftentimes it became clear that the students had some learning problems in middle or high school. The ultimate recognition of the disability in later years was quite surprising, given the force of the law behind special education.

Samantha's mother approached the teacher with a plan that was based on her personal insightfulness and intuitiveness. The weaknesses that Samantha revealed in mathematics were not to be the focus of her future educational program. The parents listened to their child; the school listened to the parents. Samantha was finally involved in special services. Samantha participated in an advanced writing class. Now her strengths were the centerpiece of her school experience. The image of school as a horrible place to be was going to change.

Samantha's writing talents were nurtured by her teacher, and further stimulated by a family friend's art work. Samantha's writing ability was extremely creative, and she captured images through words. When Samantha described herself in a section of a poem entitled "Self Portrait," she said the following:

To show you who I am
I crawled inside a tree, became its
roots, bark, and leaves.
Listened to its whispers in the wind
When fall came and painted the
leaves red and gold
I wanted to shake them across your
lawn
to transform the grass into a quilt, a
mat spread at your feet

(continued on page 14)

(continued from page 13)

but their numbers eluded me,
so I turned a piece of paper into my soul
to send to you so that you might see
how easily it can be crumpled and flattened out again.

Samantha creates images for our eyes as we decode the words. The words are reactions to incredible paintings by Charles R. Murphy. Murphy's palette and images became the lifeline for Samantha to continue her poetry and prose and unveil her talents. *Reach for the Moon* by Samantha Abeel and Charles R. Murphy is an incredible book that must be read by all parents who find themselves in a similar situation to the Abeel's. A young child who struggles day to day and views school as a terrible place to be cries out for help. If those cries are not answered at first, the parents have to speak for their child and approach the school until the answer is in everyone's best interest.

The research of Reis, Neu, and McGuire mirrors some of the experiences of Samantha's parents. They described the pathways of creating academic success by outlining several factors that are reflective of Samantha's journey. The continued presence of maternal support was critical. Samantha had family members who were always there for her. A second factor also mirrors the qualities of young Samantha: determination, perseverance, ethics of hard work, and sheer stubbornness. In the research by Reis, Neu, and McGuire, the 12 students learned from their experience of dealing with adversity. Samantha, too, may have had several negative situations that she confronted. She may have come out of the experiences as a stronger person; however, no one would want to have a child experience such pain for so many years without available solutions.

The idea of the creative writing project for Samantha supports another research finding by Reis, Neu, and McGuire. The writing project was really a personal plan for academic success. Samantha had a lot of potential in writing. Compensation strategies that helped her with her writing were part of the package for academic success. Samantha developed her talents, instead of just focusing on any deficits. Her talents were recognized more and more by several people. Initially, her book of prose and poetry was published locally under the title *What Once was White*. The self-published book gained notoriety and Pfeifer-Hamilton redesigned, updated, and published it as *Reach for the Moon*.

Samantha is now a teenager, and she may encounter difficult experiences throughout her lifetime. She has probably gained a self-awareness of her talents that will aid her in dealing with adversity. Anyone who picks up the book *Reach for the Moon* will be astounded by the story of Samantha Abeel. The art, poetry, and prose make a complete package—a marriage of talents of an artist (who also may have had struggles with school) and a young woman whose words were set free because of the intricacies of Charles Murphy's paintings.

As you read Samantha's story, and passages from her mother and teacher, you are touched by the path that Samantha took throughout her early years to reach such a successful point. Samantha is now sixteen, and she may look back on her accomplishments with sadness and joy. You will cherish the beauty of Samantha's words as you read each passage. Her gifts of poetry and prose are remarkable. She makes us look at ourselves, and she projects who she will become. She has a view of the world that makes us realize where we have been and where we are going. The poem entitled *If You Want to See* illustrates Samantha's view of the world:

If you want to see the past,
look around you
for everything you do is
living out the legacy of those
who came before you...

Feathers, the open plain
a life following
the heartbeat of a drum.
Peace. Simplicity.
The eyes of a people
looking with hope,
to the future.

If you want to see the present,
look around you
for it is what you are building
for those who will come
after you...

Poverty, not enough room,
the dreams have ended.
Feathers float to the ground, and
drums no longer beat their rhythm.
The eyes of a people
look on with misgiving
to the future.

If you want to see the future,
look inside you
for it is where all the building
begins.

Samantha's life is still building; her talents are still emerging. As educators, we hope that Samantha Abeel's talents will continue to be nurtured and expressed through ways that promote a love of learning.

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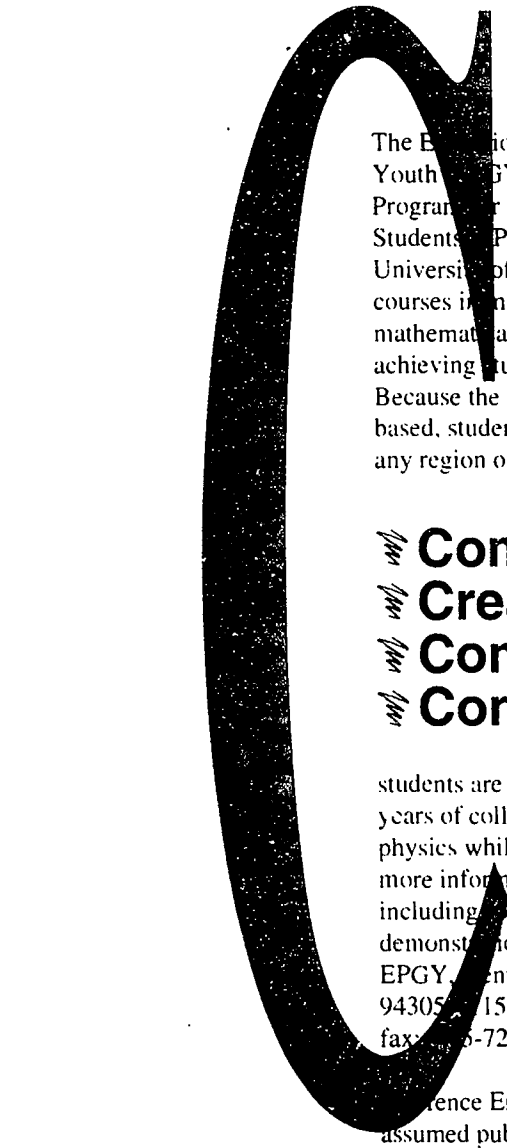
Reis, S. M., Neu, T. W., & McGuire, J. (1994). *Talents in two places: Case studies of high ability students with learning disabilities who have achieved* (Report No. 94110). Storrs, CT: The National Research Center on the Gifted and Talented.



The E[illegible]ional Program for Gifted Youth [illegible]GY) and the Special Program[illegible] Elementary School Student[illegible]PESS) at Stanford Universi[illegible]offer computer-based courses i[illegible]athematics and mathemat[illegible]al sciences to high achieving [illegible]tudents in grades K-12. Because the programs are computer based, students can participate from any region of the country. Advanced

Computers
Creativity
Competition
Conference

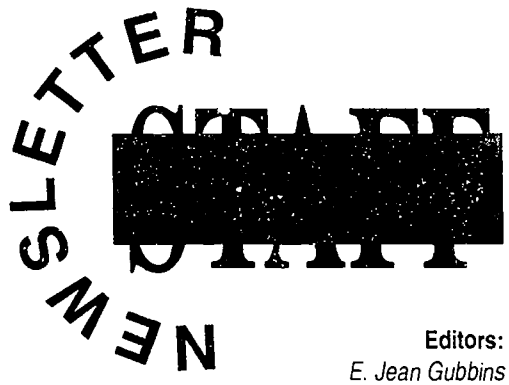
students are able to complete several years of college level mathematics and physics while still in high school. For more infor[illegible]nation about the program, including [illegible]ftware and video demonst[illegible]ion material, contact EPGY, [illegible]ntura Hall, Stanford, CA 94305[illegible]15, phone: 415-723-4117, fax[illegible]6-725-7992

[illegible]ence Erlbaum Associated has assumed publication of the *Creativity Research Journal*, according to journal editor Mark A. Runco. *CRJ* is a quarterly publication dedicated to printing scholarly research encompassing a full range of approaches to the study of creativity. Journal submission information is available from Mark A. Runco, Editor, *Creativity Research Journal*, EC 105, California State University, Fullerton, CA 92634, phone: 714-773-3376, fax: 714-773-3314. Subscription information is available from Lawrence Erlbaum Associates, Inc., 365 Broadway, Hillsdale, NJ 07642, phone: 201-666-4110, fax: 201-666-2394.

Abstracts of select publications of The National Research Center on the Gifted and Talented are now available from *Husky Gopher* at The University of Connecticut. Any computer user with access to the Internet and a gopher client can use the service. Point your gopher client at *gopher.uconn.edu* (ask the person responsible for your Internet host what gopher client is available and how to use it). From the *Husky Gopher* main menu, access *Academics*, then *Education, School of*, then *Gifted and Talented*, and finally *NRC/GT*. Within the *NRC/GT* section you will be presented with a menu of abstracts.

ExploraVision is an innovative science competition that gives students of all grade levels (K-12) an opportunity to use their imaginations to create a vision of a technology of the future. Students are encouraged to combine research, writing, and artistic skills with their knowledge of science and technology. More than $300,000 in savings bonds and prizes will be awarded. Rules and entry material for the February 1, 1995 deadline are available from Toshiba/ NSTA *ExploraVision* Awards, 1840 Wilson Blvd., Arlington, VA 22201, phone: 800-397-5679.

The Connie Belin National Center for Gifted Education will host the third biennial Wallace National Research Symposium on Talent Development. This symposium provides an opportunity for researchers and theorists from around the world to present their current work on talent development, creativity, and gifted education. The symposium will be held at The University of Iowa in Iowa City on May 18-20, 1995. Symposium proposals should be postmarked no later than December 15, 1994. For further information call or write: The Connie Belin National Center for Gifted Education, 210 Lindquist Center, The University of Iowa, Iowa City, IA, 52242-1529, phone: 800-336-6463, fax: 319-335-5151



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OERI Project Liaisons:
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Javits Act: Charting Directions

E. Jean Gubbins
The University of Connecticut
Storrs, CT

WINTER 1995

The University of Connecticut • The University of Georgia • The University of Virginia • Yale University

Inside

The Jacob K. Javits Gifted and Talented Students Education Act has been reauthorized. The Javits Act of 1994 is part of Title X, Part B, and the act was supported because the Congress finds and declares that:

1. All students can learn to high standards and must develop their talents.
2. Gifted and talented students are a national resource.
3. Too often schools fail to challenge students to do their best work and to meet high content and performance standards.
4. Unless the special abilities of the gifted and talented students are recognized and developed, their potential for contributing to the national interest is likely to be lost.
5. Gifted and talented students from economically disadvantaged families and areas, and students of limited English proficiency, are at great risk of going unrecognized.
6. State and local education agencies and non-profit schools often lack the necessary resources to plan and implement effective programs.
7. The Federal government can best carry out a limited but

(continued on page 2)

The National Research Center on the Gifted and Talented Newsletter

(continued from page 1)

essential role of stimulating research and development in personnel training.

8. The experience gained in developing and implementing programs for the gifted and talented can and should be used as a basis to develop a rich and challenging curriculum for all students to provide all students with important and challenging subject matter to study, and to encourage the habits of hard work. (Section 10202[b], Findings and Purposes)

With these findings as a basis for the Javits Act, there will be another opportunity for school districts, educational agencies, and non-profit organizations to plan and implement model projects. Those of you in our network who are interested in competing for funding that will allow you to implement programs that meet the goals and objectives of the Javits Act should monitor the Federal Register for the announcement of the competition by the Office of Educational Research and Improvement, United States Department of Education, or send for the Request for Proposal as soon as it is available:

Contact: Pat O'Connell Ross
Gifted & Talented Education Program
Office of Research & Improvement,
Room 504
555 New Jersey Avenue, N.W.
Washington, DC 20208

There are two absolute priorities for the model programs:

- Priority one concentrates on establishing and operating model projects for [illegible] disadvantaged students [illegible] projects must include students who may not be served by traditional gifted and talented programs, including economically disadvantaged students, students of limited English proficiency, and individuals with disabilities. Projects must also emphasize [illegible] content, performance standards as well as innovative teaching strategies.

- Priority two focuses on technical assistance and information dissemination throughout a state or region. These projects should be designed to provide technical assistance and disseminate information as widely as possible. The technical assistance should include information on how programs and methods can be adopted to various school environments. Projects should involve cooperative efforts among state and local education agencies, institutions of higher education, and other public and private agencies and organizations.

The Javits Act will also establish a National Center for Research and Development in the Education of Gifted and Talented Children and Youth through grants or contracts to higher education or state educational agencies. We will be submitting a new proposal for such a center. What we have learned over the past five years of conducting our research studies will become the basis for designing a new proposal. We will seek more information on new questions that have emerged from the quantitative and qualitative research studies, and we will also chart new directions for the field.

As a result of the Javits Act of 1988, The National Research Center has implemented theory-driven research studies that have practical significance for the education of children and youth. What we have learned from the NRC/GT studies conducted from 1990 to 1995 will be shared at our conference entitled *Building a Bridge Between Research and Classroom Practices in Gifted Education*. The conference will be held in Connecticut on March 31 and April 1, 1995. We have also invited presentations by our collaborative researchers who have prepared a number of documents that focus on key issues in the field.

Throughout the conference presentations, we will emphasize the translation of "theory into practice." Those of you in our network should have already received your copy of the conference brochure. We are pleased to announce that James Kulik has also agreed to join us for a keynote presentation focusing on grouping practices.

During the conference we will also be conducting interviews with various presenters about their involvement with the Research Center's work. These interviews will become the basis for our next videotape. We would like to document the lessons that we have learned from the NRC/GT research by looking at the major questions and the emergent themes within and across studies. This videotape should prove to be a very informative summary of the work done by our researchers across the country, and we plan to have copies available for our Collaborative School Districts by the end of May.

I would like to thank you once again for all your efforts in supporting the new Javits legislation and the projects implemented by the Research Center. Your role has been critical to the field, and it will continue to be so throughout the next funding cycle of the Javits Act of 1994.

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8:30	10	General Session *Joseph S. Renzulli* University of Connecticut
10	10:30	Break
10:30	12	8 Breakout Sessions
12	1:30	Lunch *(included in registration fee)*
1:30	3	8 Breakout Sessions
4	5	No Host Reception *(Dinner on your own)*
7:30	9	Keynote *Robert J. Sternberg* Yale University

8	8:30	Registration
8:30	10	General Session *Robert Abelman* Cleveland State University
10	10:30	Break
10:30	12	9 Breakout Sessions
12	1:30	Lunch *(included in registration fee)*
1:30	3	9 Breakout Sessions
3	3:30	Break
3:30	4:15	Keynote *James A. Kulik* University of Michigan
4:15	5	Panel Discussion *Moderator - A. Harry Passow* Teachers College, Columbia University

Building a BRIDGE between Research and Classroom Practices in Gifted Education
To register by mail, complete this coupon and send it to: Dawn R. Guenther–Dissemination Coordinator, The National Research Center on the Gifted and Talented, The University of Connecticut, 362 Fairfield Road, U-7, Storrs, CT 06269-2007 or fax (must include a purchase order) 203-486-2900.

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Identifying Traditionally Underrepresented Children for Gifted Programs

Dennis P. Saccuzzo
Nancy E. Johnson
San Diego State University
San Diego, CA

Identifying Underrepresented Disadvantaged Gifted and Talented Children: A Multifaceted Approach was a 3-year grant funded from October 1990 through December 1993 by the U.S. Department of Education, Jacob Javits Gifted and Talented Discretionary Grant Program. The purpose of the grant was to evaluate various models for using traditional psychometric tests for selecting diverse students for gifted and talented programs. The testing ground for this endeavor was the San Diego City School District, a system serving over 123,000 children of whom approximately 29% are Latino/Hispanic, 38% Caucasian, 16% African-American, and the remainder composed of five additional ethnic backgrounds.

In support of the objectives of the grant, the district made available a large archival data set of all children who had been evaluated for giftedness between 1984 and 1990, and allowed us to input all data on children referred and evaluated during the grant period. In the end, an extensive data file of over 26,000 potentially gifted children had been created. Of these, over 9,000 had been given the Wechsler Intelligence Scale for Children-Revised (WISC-R) and over 16,000 were given the Raven Standard Progressive Matrices (SPM) Test.

During the 1984-1990 period, the WISC-R had been the primary instrument used to determine giftedness. Students who obtained a Full Scale WISC-R IQ of 130 or greater or a Full Scale WISC-R IQ of 120 with at least two of six risk factors (cultural, language, emotional, economic, health, and environmental) were certified as gifted. Extensive analysis of the data led to two major conclusions. First, there were inequities in the referral process. For example, based on their proportion in the district as a whole and assuming that giftedness is evenly distributed across ethnic backgrounds, Latino/Hispanic children were underrepresented in the referral process by a factor of 4 (i.e., the number tested represented only 25 percent of their actual proportion in the district). Second, an exhaustive analysis that evaluated all major systems and models for weighting WISC-R subtests revealed that the WISC-R could not be used to produce

ethnically proportionate representation (i.e., children selected across ethnic backgrounds in proportion to their actual numbers in the district population). These findings and conclusions are documented in a monograph (Saccuzzo, Johnson, & Guertin, 1994) and in articles presently under editorial review.

Given the referral bias uncovered by our analysis of the archival data from the 1984-1990 period, the school district made an effort to achieve proportionate representation in the referral process through teacher training (to help identify potentially gifted traditionally underrepresented students) and through central nominations. At the same time, the district shifted from the WISC-R to the SPM in order to find a culture-reduced measure of intellectual giftedness.

There was a considerable shift toward proportionate representation in the referral process during the 1991-1993 period. Moreover, the use of the SPM in conjunction with an evaluation for risk factors led to the identification of thousands of traditionally underrepresented children who otherwise would not have been selected for the gifted program. While the SPM did lead to increased equity for all ethnic groups in that each ethnic group was selected in greater proportion to their numbers in the population as a whole, it did not produce a completely balanced result for all groups. Again, these results are presented in a monograph (Saccuzzo et al., 1994) and in papers in submission.

In brief, our results comparing the WISC-R and SPM revealed that the two measures had equal predictive validity and showed no differential validity as a function of ethnic background. The SPM proved to be far better than WISC-R in terms of a proportionate representation model of bias, but was not entirely free of such bias. We conclude, based on our findings and on previous reviews of psychometric tests (Kaplan & Saccuzzo), that no traditional test, as presently used, can meet the rigors of proportionate representation.

Given the large data set, we were able to conduct numerous analyses of special interest, as reported in our monograph. In one study, intellectually gifted children from diverse ethnic and cultural backgrounds as well as varying levels of risk were evaluated to determine the effect of risk on gifted children when intelligence level has been controlled. Each of the 7,323 children from six ethnic backgrounds had achieved a standardized intelligence test score (Wechsler Intelligence Scale for Children-Revised or Raven's Standard Progressive Matrices) at least two standard deviations above the mean. Although each child in the sample had demonstrated high intellectual potential, differences were found between groups defined on level of risk: no risk, low risk (one and only one area of risk), and high risk (more than one area of risk). High-risk gifted children were disadvantaged relative to those at low or no risk in all measures of both aptitude and achievement, as assessed with the Developing Cognitive Abilities Test and the Comprehensive Test of Basic Skills. Furthermore, those at high risk demonstrated lower WISC-R Verbal IQ scores than children at lower levels of risk.

Our data also allowed us to analyze gifted underachievers. A well-defined sample of gifted underachievers was compared to a sample of gifted high-achievers. All children had full scale WISC-R IQ scores of 130 or greater. Analysis of gender, ethnicity, and risk revealed a greater concentration of non-Caucasian males with at least two risk factors in the underachieving group. Our findings suggested that gifted underachievers are not as motivated or interested in acquiring traditional factual information as high-achievers. Creative teaching strategies are recommended to maximize the talents of underachievers.

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Gender Differences Between Student and Teacher Perceptions of Ability and Effort

Del S[illegible]
Sally [illegible]eis
The U[illegible]ty of Connecticut
Storrs

RECENT RESEARCH

The att[illegible]n of both educators and the gene[illegible]ublic has been focused on some of t[illegible] problems facing girls in school. A [illegible]eport entitled *How Schools Shortcha[illegible] Girls* issued by the American [illegible]ssociation of University Women (W[illegible]llesley College Center for Research on Women, 1992) and a new book entitled *Failing at Fairness: How America's Schools Cheat Girls* by My[illegible] David Sadker (1994) indica[illegible]t our educational system is not [illegible]g girls' needs and speci[illegible]mentions achievement sc[illegible]rriculum design, and [illegible]r-student interaction as issues negatively affecting girls. Reis (1991) has advocated research that compares the school experiences of gifted girls with those of gifted boys in order to determine if recent changes in attitudes about females may have improved some of the issues facing these groups. This research is an attempt to add to the limited data-based studies available on this topic. In this study, the attitudes of fourth through eighth grade male and female gifted students about their ability, effort, quality of work, subject importance, and grades are investigated as are the attitudes of their teachers toward these areas.

Background of the Study

Students usually indicate that effort and ability are the reasons they achieve or underachieve in school (Good & Brophy, 1986). High-achieving students tend to attribute their successes to a combination of ability and effort, and their failures to lack of effort (Franken, 1988; Good & Brophy, 1986; Luginbuhl, Crowe, & Kahan, 1975). Students who underachieve, however, often attribute their successes to external factors such as luck, and their failures to lack of ability (Ames, 1978).

Boys more often attribute their successes to ability and their failures to lack of effort (Nicholls, 1975), while girls often attribute their successes to luck (Reis, 1987) or to effort (Rimm, 1991) and their failures to lack of ability (Licht & Shapiro, 1982; Nicholls, 1975; Reis, 1987). The academic self-efficacy of young males is enhanced because they believe in their ability, and it is maintained during failures because of their attribution of failure to lack of effort. However, the same may not be true for young females because they may accept responsibility for failure, but not for success (Felton & Biggs, 1977).

Developing a strong belief in one's ability in the elementary and middle school years is important because "by the end of elementary school, children's [perceptions]...of ability begin to exert an influence on achievement processes independent of any objective measures of ability" (Meece, Blumenfeld, & Hoyle, 1988, p. 521). Gender differences have recently been noted in the academic performance of adolescent girls. The standardized test scores of girls in mathematics begin to decline during middle school years when girls' beliefs about their own ability lessen, and this decline may affect gifted girls in particular. The recent AAUW report indicated that "all differences in math performance between girls and boys at ages eleven and fifteen could be accounted for by differences among those scoring in the top ten to twenty percent" (Wellesley College Center for Research on Women, 1992, p. 25).

Teachers may be responsible for the beliefs students hold. As early as first grade, teachers tend to "attribute causation of boys' successes and failures to ability and girls' successes and failures to effort" (Fennema, Peterson, Carpenter, & Lubinski, 1990). Pintrich and Blumenfeld (1985) found that "teachers' feedback about work was a better predictor for children's self perceptions about their ability and effort than were other types of interactions with the teacher or with peers" (p. 654). Dale Schunk (1984) showed that successful students who received feedback complimenting their ability, rather than focusing on their effort, developed higher self-efficacy and learned more than students who received feedback complimenting their effort.

It has been traditionally reported that girls receive higher grades than boys in school (Achenbach, 1970; Coleman, 1961; Davis, 1964). Unfortunately, those high grades may actually negatively affect girls' self-esteem. As Silverman (1993) has stated, "one factor that clearly undermines gifted adolescent girls' self-esteem is their belief that high ability means achieving good grades effortlessly" (p. 304). Some students believe that if they must work hard, they lack ability (Dweck, 1986).

Purpose of the Study

The purpose of this study was to investigate whether female gifted students viewed the quality and importance of their work, effort, and ability differently than male gifted students. The study also investigated whether teachers perceived male and female students differently with respect to the quality of their work as measured by their grades, effort, and ability in the areas of mathematics, language arts, social studies, and science. Finally, student and teacher perceptions of the role of ability and effort were investigated.

Methods

Subjects

The sample included 5,515 fourth through eighth grade students and their teachers (n=1,223, grade 4 students; n=1,262, grade 5 students; n=1,041, grade 6 students; n=954, grade 7 students; n=906, grade 8 students). All of the students (n=2,709 males; n=2,676 females) were identified as gifted and talented by their school districts. A purposeful sample of 210 schools in 30 states was selected from the Collaborative School Districts (CSD) of The National Research Center on the Gifted and Talented (NRC/GT) at The University of Connecticut based on their willingness to participate, availability of appropriate age student population, and a research liaison to gather the necessary data. The Collaborative School Districts are proportionally representative of the student population with respect to socioeconomic levels and ethnicity.

Instrument

An instrument entitled the *Academic Achievement Survey* (Siegle & Reis, 1993) was developed and used to gather information from teachers and students about the quality of students' work, their effort, their ability, subject importance, and their grades in each of the four content areas of mathematics, science, language arts, and social studies. Separate surveys were developed for students and teachers. A 5-point response scale was used to assess students' perceptions about their ability, effort, subject importance, and work quality in all content areas. Teachers' perceptions of student ability, effort, and work quality were assessed on a similar scale by teachers who taught the specific content areas to students. Information about students' grades was also collected on a 5-point scale (A, B, C, D, F).

Each student who was identified as gifted and talented by each school completed a survey. The teachers who were responsible for teaching the identified students in mathematics, language arts, social studies, and science completed a teacher survey for the subject areas they taught.

Data Analysis

BMDP program 4V was used to perform separate Multivariate Profile Analyses of Repeated Measures for the teacher responses and for the student responses. The between terms for each analysis were gender and grade level. Ability, effort, quality of work, and importance were the variates for the student analysis. Ability, effort, quality of work, and grades were the variates for the teacher analysis. The repeated measures were the subject areas of mathematics, science, social studies, and language arts.

Effect size calculations were computed in order to compensate for

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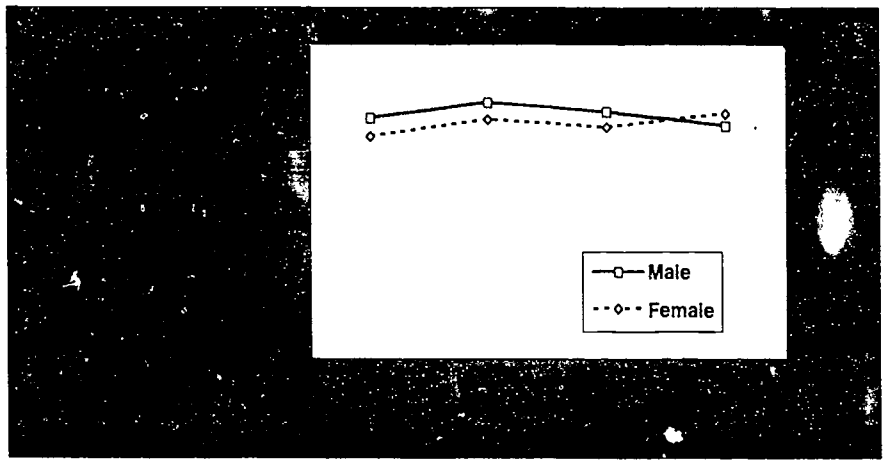
the extremely large sample size, since even a small difference among groups in a large sample may result in statistical significance. Effect size, the degree to which groups differ on measured variables, is the most effective way to examine results of studies with large samples (Cohen, 1988). The results showed small, but practical, effect sizes.

Results

Results indicated that teachers consistently rated female students higher than male students on effort and the quality of their work. However, teachers rated males and females similarly on their abilities, except in language arts, where they rated females higher than males. Female students received slightly higher grades than male students. Grades for both groups dropped from fourth through eighth grade, and mathematics and language arts grades were lower than science and social studies grades at the eighth grade level.

Female students rated their language arts ability higher than male students. Male students rated their mathematics, science, and social studies abilities higher than females (see Figure 1). Unlike the teacher ratings, male and female students rated themselves similarly on effort. The students believed they worked hardest in science. Female students rated the quality of their work and the importance of language arts higher than male students. There were no differences in how male and female students rated the quality of their work and the importance of mathematics, science, and social studies. Overall, student ratings of ability, effort, quality of work, and importance dropped from fourth through eighth grade.



Separate correlation comparisons were made between each of the variates for the teachers' ratings of their students and the students' self-ratings. The teacher responses indicated that high relationships existed between both ability and quality of work (r=.81) and between effort and quality of work (r=.80). The student responses were quite different. The students' responses revealed a high correlation between ability and quality of work (r=.68), but a lower correlation between effort and quality of work (r=.34). These patterns were similar for male and female students.

Conclusions and Recommendations

Females are clearly perceived by classroom teachers as working harder and producing higher quality work than males. Teachers reported a difference in the ability of gifted male and female students only in the content area of language arts. This finding may represent some progress with educators regarding gifted girls' abilities in the areas of mathematics and science. However, the same positive conclusion cannot be drawn about girls perceptions' about their own abilities. Gifted boys in this study reported stronger beliefs about their own abilities than did gifted girls in mathematics, social studies, and science. This is an area of concern because gifted girls are apparently still not recognizing their abilities in these areas to the same extent as gifted boys. A key factor in keeping gifted girls involved in higher level mathematics and science courses is their self-perception of ability. Despite some intervention programs which may or may not be implemented in individual schools and more equitable teacher attitudes about females in math and science, gifted girls are still not perceiving their abilities as highly as gifted boys in these areas.

The lower ratings reported for gifted boys in language arts is also an area of concern. Not only do the males perceive language arts to be less important, teachers are also viewing the ability, effort, and quality of work in language arts lower for males. Educators should emphasize the importance of communication skills with male students.

While the teachers in this study viewed ability and effort as being highly associated with the quality of work students produced, students do not share that view. Males and females alike reported a much stronger relationship between ability and quality of work than between effort and quality of work, indicating that

they may be putting little to no effort into their work. Students may also be viewing ability as a major factor in the quality of their work instead of understanding that ability, without effort, will not result in the realization of their high potential.

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Unique Identification for Unique Talents

A review of *Identifying Outstanding Talent in American Indian and Alaska Native Students*

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A Review of
Identifying Outstanding Talent in American Indian and Alaska Native Students
by
Carolyn M. Callahan and Jay A. McIntire

In the book, *Identifying Outstanding Talent in American Indian and Alaska Native Students*, Carolyn M. Callahan and Jay A. McIntire provide a comprehensive overview of some of the key issues involving the identification of these two populations. The central question that the book attempts to answer is: What are the specific techniques that should be employed to recognize the gifts of students from these two groups? Due to a lack of research into the appropriate identification techniques for Alaska Natives and American Indians this question is difficult to answer. The authors do, however, provide many general suggestions as to how the identification process can be substantially improved.

The crux of the argument for more appropriate identification techniques is based on research which suggests that American Indians and Alaska Natives are severely underrepresented in gifted programs throughout the country. As the authors point out, the "average national rate of public school eighth-grade students' participation in programs specially designated for gifted and talented students is about 8.8 percent. The American Indian/Alaska Native participation rate is only 2.1 percent" (p. 3). The question that arises is: Why are American Indian and Alaska Native students not being selected for participation in gifted programs? The authors believe the answer to this question is that the procedures used to identify the majority of gifted students do not recognize the unique and varied talents of these two minority groups.

Before considering some of the suggestions presented for identifying the gifts of American Indian and Alaska Native students, it is necessary to point out the issues that are of concern in dealing with students from these two populations. Not only are these two groups distinct from the majority of American students, but there is great diversity within each group that needs to be considered. This diversity stems from the following four areas:

1) Geographic location: Students who live in rural, isolated areas often have little knowledge of what is expected of them from the mainstream culture that they find in school. Students raised in urban areas may not experience this difference.
2) Tribal differences: The traditions and customs, as well as the

language spoken, often varies from tribe to tribe.

3) Schools attended: Most American Indian and Alaska Native students do not attend special reservation schools. In most public schools they are a minority population. They often have a different first language and have many unique experiences and modes of expression which make it difficult to recognize their talents.
4) Cultural and social orientation: Students in these two groups may reflect various degrees of familiarity with the mainstream culture, ranging from being well acculturated to quite traditional in their cultural heritage.

Before beginning the identification process, the authors stress the importance of clearly defining what is meant by giftedness. They rely heavily on the definition of giftedness put forth by the U.S. Department of Education (1993). The characteristics they feel are important to recognize in gifted students include "intellectual ability, creative or artistic talent, leadership capacity, or excellence in specific academic fields" (p. 6). While these characteristics allow for a variety of talents and abilities, the authors point out that many definitions of giftedness often conflict with the beliefs and values of a particular tribe. Many tribes are against labeling students as gifted because this tends to separate them from other tribal members. A mesh between tribal identity and scholastic expectations must be reached in order for these students to be successful.

Eight general principles are presented to help educators identify the broad range of gifts and talents that may be exhibited by American Indian and Alaska Native students. It should be emphasized that these recommendations are "general" in nature. This seems to be both good and bad. The recommendations provided can be applied to almost any subgroup of gifted students for which a broad and flexible range of identification techniques may be necessary. On the other hand, the principles should be more specific in order to provide for the unique needs of subgroups of the Alaska Native and American Indian populations. It should be noted that so little has been written on this topic that even general recommendations that provide a basic framework for later research into identification techniques are greatly needed.

Instead of explaining each principle in detail, I will comment on the central themes that run through the principles. First and foremost, the authors recognize the need for a broadened conception of giftedness which takes into account a wide range of talents and abilities. The authors cite the work of Howard Gardner and Robert Sternberg as particularly relevant in this respect. It is important to realize that many of the talents and gifts exhibited by American Indian and Alaska Native students reflect the culture of the tribal community in which they are raised. This may be particularly noticeable in music and art. Separate identification procedures need to be developed that are "contextually relevant" and grasp the true nature of the gift that is revealed. American Indian and Alaska Native students should not be lumped together as a general population, but regarded as an amalgamation of a diverse variety of subgroups.

To illustrate the unique talents of these two groups, the authors provide many examples of poetry and art produced by American Indian and Alaska Native students throughout the book. In fact, the art work on the front cover, designed by Vic Runnels, was a product of his son's inspiration. According to Runnels, his son Jason came up with the idea in kindergarten when asked to draw a turkey using the shape of his hand. Instead of drawing a turkey for Thanksgiving, Jason "drew faces in the fingers, people in the palm of the hand, eagles and suns in the sky, and fish in the water" (p. 76). When asked what the drawing represented, Jason stated it was "The Great Spirit watching over the earth" (p. 76). This certainly shows the unique gifts and talents that many students possess.

Some of the particular identification instruments that the authors recommend include parent, teacher, and community rating scales, and portfolio assessment. I believe portfolio assessment would be particularly useful, because it stresses the need to evaluate student products. This allows the identification to be appropriate to the unique talents that may be displayed by a particular student, from a particular tribe, at a particular time. Although the techniques mentioned above may be useful, it is stressed that no one form of identification should be used exclusively. Just as there are a broad array of talents, a wide range of identification procedures need to be used to identify these talents.

Even though the principles provided are general in nature, the authors do a good job of listing many of the characteristic behaviors and traits that are exhibited by particular groups of American Indian and Alaska Native students. Implications for identification based on these behaviors and traits are then provided.

Overall, I found the book quite informative. The authors skillfully emphasize the need to recognize the great diversity among these two groups and the multiplicity of talents that can be revealed by the members in them. I would have liked to have seen more specific recommendations, but as the authors point out, research in this area is just beginning.

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Classification Procedures for Gifted/Learning Disabled Students:

A Primer for Parents

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Robert is a 10-year-old boy who has been reading since he was 3. By the age of 5 he had read the entire Encyclopedia Britannica and was reading the newspaper daily. His early conversations began as a mimic of the adults around him but soon it was apparent that he was elaborating on his own. His interest in reading allowed him to learn a great deal in science and history, leaving his second- and third-grade teachers at a loss for material to teach. There is little doubt that Robert would do well in the fourth-grade gifted class, but placement has been held up by his difficulties in spelling. Robert's handwriting is almost illegible and his spelling is equally as bad. Most recently, he has been having difficulty handing in assignments because of his writing problems. Robert's fourth grade teacher has recommended that he be tested for a learning disability.

Jason is in third grade and because of his high language arts achievement, is a member of the enrichment group on Fridays. His classroom teacher wants to suspend his enrichment time because Jason is not keeping up in math. Lately, Jason has been acting out in class. He has trouble staying in his seat and has begun calling out in class. Jason also has trouble keeping his books and papers in order, and frequently loses his work. His behaviors are disrupting to both the class and to himself. A meeting has been set up with his parents, enrichment teacher, and resource teacher to make a plan for Jason.

Both of these children exhibit characteristics of gifted children and of learning disabled children. To be gifted and learning disabled seems almost like a contradiction of terms. You, as a parent, know exactly what it means for your child. It could be that your child is bright, motivated, verbal, and creative. It also means that she/he is having some trouble in school. Sometimes the problem could be in spelling, reading, or math. Above all, there is some discrepancy between what you know your child can do and what she/he is able to do in the classroom setting.

More often than not, for the gifted/learning disabled (g/ld) child, it is the lack of school achievement that is noticed first. The identification of a learning disability, however, may be delayed because gifted children have the ability to mask the problems. There will come a day when the teacher of your bright child will begin using words like "difficulty" and "deficiency." According to the federal government (PL 94-142), the definition of learning disabled

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COMMENTARY

children is, briefly, that they show a discrepancy between achievement and ability. The criteria used to define achievement, ability, and discrepancy vary from state to state, but the law mandates that a team of experts looks at specific areas within expressive language, reading, and mathematics. These experts then make recommendations for educational placement and remediation procedures. There are several ways that schools remediate learning disabilities. Some schools have specific classrooms set up to accommodate LD students all day. There is also the option of using a resource room for part-time remediation. The child would report to the resource room at predetermined times each day or week. Some schools have teachers or teacher aides in the regular classroom to assist the students as they have difficulties with the work during the course of the day.

For those experiencing the classification process for the first time, the road can be a confusing collection of terms and opinions. Be sure to keep an open dialogue with the school, especially with teachers and school psychologists. Know that they are trying to help. You can help yourself by requesting appointments with those at the school who are involved. Get as much information from them, since procedures will vary from school to school. Some districts offer printed material and pamphlets. As a parent of a gifted child, you need to be sure the school understands all your child's needs. There will be areas that your child will excel in and areas that she/he cannot keep up in--both need to be considered.

The process generally begins with identification, then testing, followed by classification, and finally, intervention.

Identification: Unfortunately for g/ld children, they are recognized faster for their disability than their abilities. The identification can come from either the school or the home. In any event, someone notices that there is a problem. It can be that the child has high standardized test scores but low achievement in classes. She/he may exhibit specific problems like lack of attention, poor spelling, difficulty with memorization, and/or general disorganization. The teacher or the parent can request a screening with the school psychologist.

Testing: Probably the most controversial issue in education today is the use of testing. States will mandate that some form of testing be used to substantiate classification. Widely used is some form of IQ test, especially the Wechsler scales (WISC-III). The WISC profiles of g/ld children show distinct discrepancies between scores on each subtest. What you as parents want to see, though, is a wide variety of tests used in the evaluation. No one test should be used to evaluate your child's functioning. A psycho-educational evaluation should include information about emotional issues and achievement levels. How children feel, after all, can influence their motivation for school.

The evaluation should include the following types of testing (Note: tests listed are for example only and will vary from school to school):

Individual IQ:
- Wechsler Intelligence Scale for Children - III (WISC-III)
- Wechsler Preschool & Primary Scales of Intelligence (WPPSI)
- Stanford Binet Intelligence Scale-IV (SBIV)

Achievement Test Battery:
- Wide Range Achievement Test (WRAT)
- Woodcock-Johnson Achievement Battery
- Detroit Tests of Learning Aptitude (DTLA)

Some Form of Spatial Evaluation:
- Bender Visual Motor Gestalt Test

Social/psychological Functioning Inventory:
- Vineland Social Maturity Scale
- Adaptive Behavior Scale-Public School Version

and/or a Classroom Observation Checklist

You want the assessment to specify many forms of functioning: academic, social, and psychological. Does the testing account for all areas? Is there a "whole child" perspective? Most importantly, you want to see the report generated by the school psychologist prior to any committee meeting. You have the right to see what is written about your child and should expect enough time to read it. You may even want to arrange a meeting with the school psychologist so she/he can explain the report to you.

Classification: At some point a meeting will be scheduled so that classification can be discussed. In some districts this is called a Committee on Special Education or a Pupil Personnel Team. Whatever the name, this is where Individual Education Plans (IEP) are developed and classification made. The make-up of the group will vary with members of the committee and school personnel. Those conducting the evaluations should be present to make the case for appropriate programming. One thing to keep in mind if you are looking for a g/ld classification is that there may not be a gifted specialist on the committee unless you make a case for it. This is a question of enrichment as well as remediation, and accomplishing this requires the coming together of both sides. Above all, keep in mind that this is meant to be a coming together of concerned parties, not a battle about your child. You, as parents, are a vital part of the process. Your insights into your child are invaluable; if something does not correspond with what happens at

(Continued on page 14)

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home, then ask for clarification. Offer suggestions to teachers, if need be.

Intervention: Remediation is always the first concern of special education personnel. Certainly you would not be sitting in a committee meeting if your child did not need help with some skills. Don't let anyone forget that your child has talents that can be tapped. What better way to teach her/him to read than by using material that is interesting to the child? This is where your insight into home behaviors will help the school personnel understand. Above all, concentrate on strengths. Ask if it is possible to have enrichment as well as remediation. Sometimes you won't know unless you ask.

What Can Parents Do?

1. Be involved with your child and her/his schooling. Find out what's happening and not happening in the classroom. Be sensitive to the subtle signs from your child that needs (social and academic) are not being met. Boredom and frustration are always the most visible indicators. Find ways to do work at home that blend with what is happening in the classroom. More is not always the answer; sometimes the work has to be different to be effective.
2. Become an advocate for your child. Learn all you can about what is available in your school, district, county, and state. Become active in the PTA. Don't be afraid to let your voice be heard. There are many other parents in similar situations. Look for ways to utilize the resources of both special education and gifted education.
3. Spend time with your child and focus on activities that accentuate her/his strong points. Children with disabilities tend to concentrate on their own weaknesses. Help your child see that there are things at which she/he excels. She/he may never learn how to spell or read quickly, but there are things she/he can do quite well. Tap into creativity; help her/him find new ways to get information that does not frustrate efforts.

Most importantly, keep a positive attitude. This will facilitate the home-school relationship. The school is there to help your child learn; let them know you are, too.

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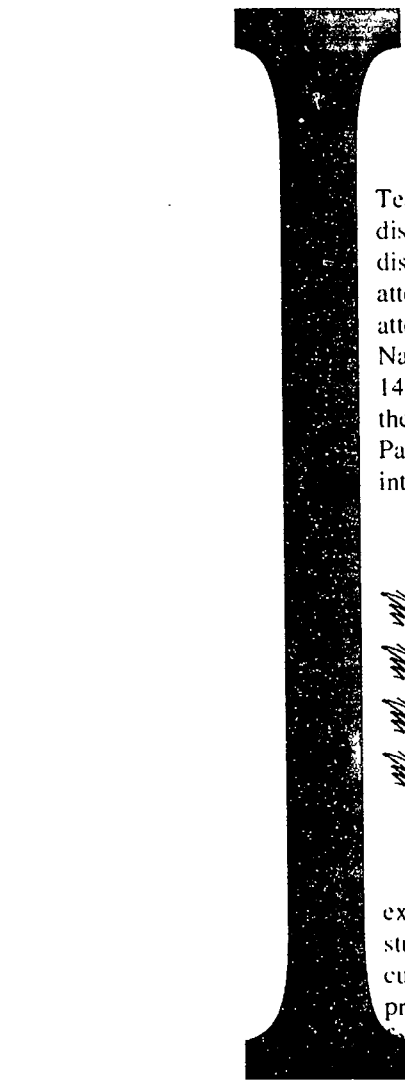


- Institutes
- Books
- Grants
- Conferences

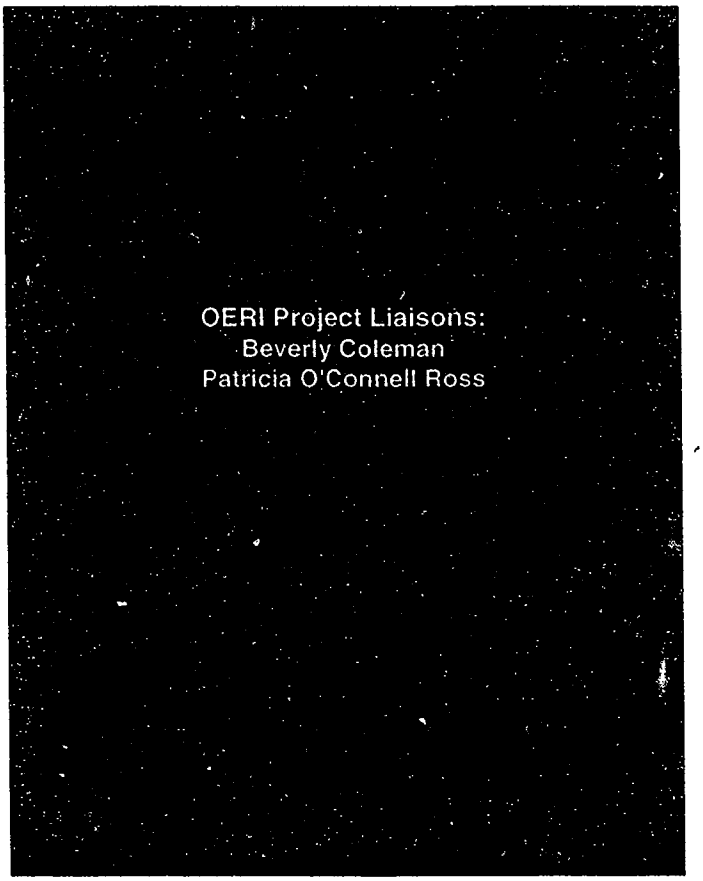
Teachers of children with learning disabilities, emotional or behavioral disorders, hearing impairments, or attention deficits may be interested in attending the *Project* HIGH HOPES National Training Institute on July 10-14, 1995 at the American School for the Deaf in West Hartford, CT. Participants at the institute will interact with nationally-acclaimed experts in the field and observe students using interdisciplinary curriculum to solve real-world problems. *Project* HIGH HOPES is a federally funded Javits program which focuses on identification of potential for gifted behavior in science/ technology, visual arts, or the performing arts in students with special needs. For more information contact: *Project* HIGH HOPES, P.O. Box 402, Danielson, CT 06239.

Over the last 12 years, the Center for Talented Youth (CTY) at Johns Hopkins University has become a major influence in American education with its world-wide talent search and advanced summer programs for talented fourth through twelfth graders. Based on 13 case studies from the CTY program, *Smart Kids–How Academic Talents Are Developed and Nurtured in America* by W. G. Durden and A. E. Tangherlini is an interesting, readable book about talented children and their education in the United States. In it the authors describe drawbacks in the current educational system and how improvements can be implemented. *Smart Kids–* is available for $27.50 from Hogrefe & Huber Publishers, P.O. Box 2487, Kirkland, WA 98083.

School districts with innovative ideas to motivate female students to pursue careers in science, mathematics, and engineering can tap into a National Science Foundation program. NSF's Model Projects for Women and Girls program annually supports about 17 projects of up to $100,000 each that design and implement highly focused activities to increase women's and girls' confidence in science, math, and engineering studies. For more information contact: Lola Rogers, Program Director, Division of Human Resource Development, Educational and Human Resources Directorate, NSF, Room 815, 4201 Wilson Blvd., Arlington, VA 22230, (703) 306-1637.

Educators interested in language arts programs for highly able K-9 learners will want to attend one of two training institutes being conducted by the Washington-Saratoga-Warren-Hamilton-Essex Board of Cooperative Education Services and the Center for Gifted Education at the College of William and Mary. A spring institute will be held at the College of William and Mary on March 5-7 at Williamsburg, VA. For registration information call Dana Johnson at (804) 221-2362. A summer institute will be held July 10-14 at Skidmore College in Saratoga Springs, NY. For registration information call Robin Gibbin at (518) 584-3239 (ext. 315).

NEWSLETTER



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The National Research Center on the Gifted and Talented:

Reaching the Destination

E. Jean Gubbins
University of Connecticut
Storrs, CT

I feel as if I have been on a long road trip since July 1990. That's when I signed up to be part of The National Research Center on the Gifted and Talented (NRC/GT). I thought I knew what I was getting into. I read the initial proposal for the NRC/GT, but didn't have a real sense of what it would take to carry out the planned mission. I hit the road without road maps or written directions. It is now May 1995 and the "road trip" for the NRC/GT ends within days. It is time to look back to see what has been accomplished.

When I view all of the multimedia products created by the NRC/GT, I am amazed at the level of productivity. A primary mission of the Center was to conduct theory-driven research that would have practical implications for administrators, teachers, schools, and parents. All the results of such research would be presented in practitioner-friendly products in different formats. The written words

(Continued on page 2)

SPRING 1995

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The National Research Center on the Gifted and Talented Newsletter

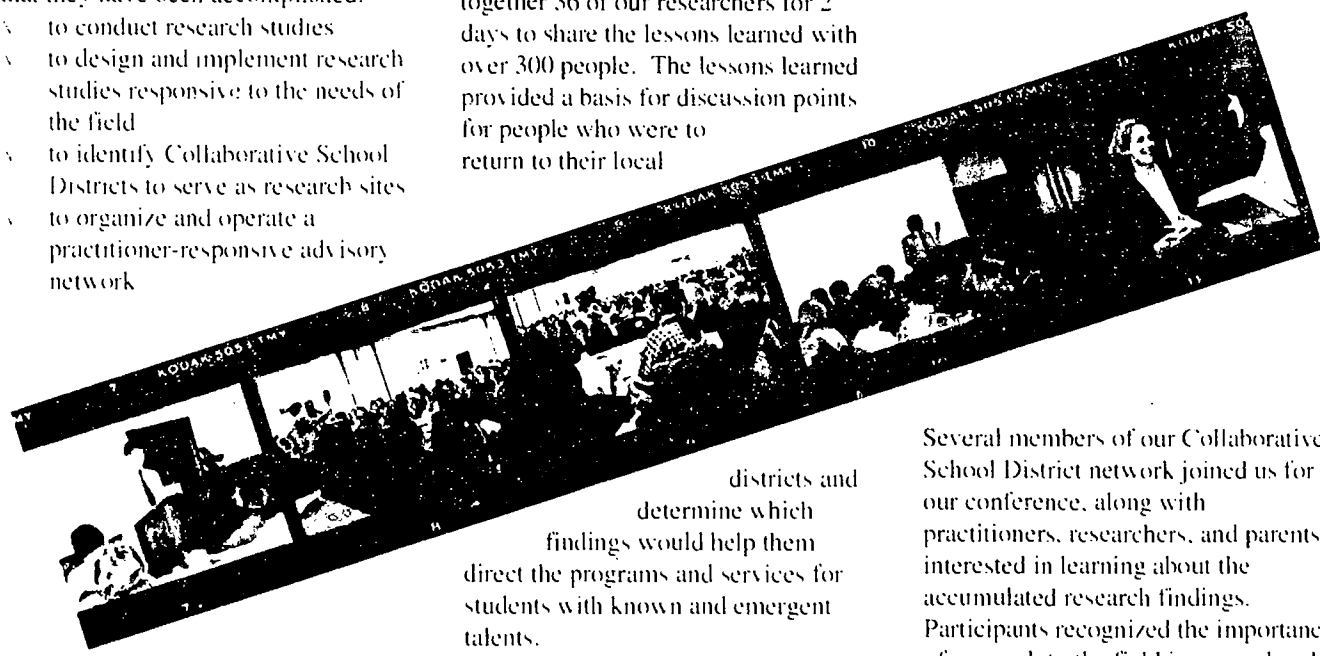
(Continued from page 1)

and visual images have documented our progress over time for millions of people around the world. Over the years, people have accessed the research information from journals, newsletters, newspapers, books, slides, satellite teleconferences, fax machines, computer networks, and computer disks. Those who preferred to hear about the research findings have joined us at presentations in several states and countries during local, state, national, and international conferences and workshops. Our staff has made over 830 presentations to ensure that the research results were not limited to periodical shelves in university libraries.

The talents and energy of our staff have made it possible to chart the course to reach our destination drafted in our original objectives. It is important to look back at the general categories of our objectives and note that they have been accomplished:

- to conduct research studies
- to design and implement research studies responsive to the needs of the field
- to identify Collaborative School Districts to serve as research sites
- to organize and operate a practitioner-responsive advisory network
- to conduct a comprehensive needs assessment
- to develop a comprehensive dissemination program to disseminate research findings by publishing articles and making presentations
- to prepare a series of literature reviews, research syntheses, and meta-analyses
- to establish a comprehensive database and research archives
- to establish a system of monitoring and accounting of the Center's activities
- to develop a broad-based theoretical framework for the study of the gifted and talented.

And we are still adding to our list of accomplishments! We have been working feverishly to crunch mounds of statistical data, to search for themes and patterns in reams of field notes and transcripts, and to prepare products. During all of this activity, we held our final conference in Connecticut on March 31 and April 1, 1995—*Building a Bridge Between Research and Classroom Practices in Gifted Education*. We brought together 36 of our researchers for 2 days to share the lessons learned with over 300 people. The lessons learned provided a basis for discussion points for people who were to return to their local districts and determine which findings would help them direct the programs and services for students with known and emergent talents.



As I presented sessions, attended sessions, and met with people formally and informally, I listened and responded to comments and questions. The discussions by all were informative and intriguing. The research was important to them and many of them appreciated the opportunity to be part of the Center's grand design to include hundreds of Collaborative School Districts across the country as research liaisons in conducting applied studies. In fact, in the past few month the following school districts have joined our network:

Cardinal Community School District
Eldon, IA

Erie Community Unit District 1
Erie, IL

Grosse Point Public School System
Grosse Point, MI

Marshall Public Schools
Marshall, MI

Onteora Central School District
Boiceville, NY

Quaker Valley School District
Sewickley, PA

Several members of our Collaborative School District network joined us for our conference, along with practitioners, researchers, and parents interested in learning about the accumulated research findings. Participants recognized the importance of research to the field in general and to their particular situation in their districts, universities, or homes. A sample of comments from conference participants serves as support for our original objectives:

We are a Collaborative School District and from the beginning we felt this [the NRC/GT] was important to us. I don't think that you can do good school programming without research.... Often we have done that and left the research to people beyond our control and certainly I appreciate the idea that this segment of gifted education can be backed by solid, good research, rather than hearsay or general types of research.

Dennis Hansen
Omaha, NE

I want to be backed up by theory. I want to have an opportunity to be with the scholarship that was presented in the past 2 days. I feel that this center is representing very high quality research and the best of our leadership in the field of gifted.

Gretchen Duling
Snyder, NY

Workshops are a rejuvenation.... It is refreshing to have an opportunity to talk to other professionals and to talk about the same problems and just to get validation for what you are doing.

Sue McInerney
South Windsor, CT

[The conference] has been a high! It has been a delight—being with other people in the field is a thrill because we tend to be isolated in our home districts.... The networking opportunities have been phenomenal! Not to exclude the quality of the presenters and of Joe Renzulli's tying together of the whole operation. One of the highlights of my career, and I am really not just saying that—it is the truth!

–Ruth Caley
Pearl River, NY

I am very excited about The National Research Center on the Gifted and Talented because. . . they are involved in [connecting] research to practice. Research in the past has always been pure research, and it has been conducted at the whim of the researcher.

The collegial atmosphere between the researchers and the practitioners at this conference is second to none.... I hope that we can continue this kind of dialogue and continue to be in touch with each other so we can have a good exchange—not only between the researchers and practitioners, but between the practitioners and researchers.... It is really a two-way street, and we need to work together to have the best possible education system.

H. Juliette Harris
Bermuda

Comments such as these make the "high speeds and rocky roads" I traveled more worthwhile. The 5 years have been a whirlwind of activity, but the opportunity to conduct applied research studies on the education of gifted and talented students has been an unparalleled opportunity. The Research Center has been supported by the Jacob K. Javits Gifted and Talented Students Education Act of 1988, administered by the United States Department of Education Office of Educational Research and Improvement (OERI). I would be remiss if I didn't send special thanks to the Center monitors from OERI with whom I have worked, including Margaret Chávez, Ivor Pritchard, Patricia O'Connell Ross, Beverly Coleman, and Debra Hollinger. They have all guided the destination. The destination would not have been possible without the federal support and leadership.

So many of you have had a critical role in the research efforts. Each person has been a contributor to the national agenda that dates back to the Research Needs Assessment Survey—remember that form! Thousands of surveys were returned during 1991 (and yes, it is true that one was returned in 1994). The resulting data analyses provided the direction for research from 1991-1995. Well, the research path is coming to an end for now, and I just want to say how much I appreciate all the people involved in The National Research Center on the Gifted and Talented. Thank you is such a brief phrase, but it carries with it a sincerity that no other words can match.

The Road Not Taken

Two roads diverged in a wood, and I
I took the one less traveled by,
And that has made all the difference

–Robert Frost

Multiple Intelligences Help Teach Culturally Diverse Learners

Carol Tomlinson
University of Virginia
Charlottesville, VA

RESEARCH IN PROGRESS

In a university-school district collaboration called Project START, an acronym for Support for Rising Talent, the University of Virginia and Charlotte-Mecklenberg (North Carolina) Public Schools are conducting a three-year study to determine the efficacy of using a multiple intelligence model to identify and teach primary age, low socioeconomic and/or minority learners.

The project has both practice and research components. The Charlotte-Mecklenberg Schools, using funding from a Javits grant, assume major responsibility for the practice component. Approximately 250 low socioeconomic and/or minority first and second graders from 16 schools have been identified for participation in Project START using a series of nontraditional, problem-solving tasks based on Howard Gardner's Theory of Multiple Intelligences. Through such activities as story-telling, building structures, developing strategies for keeping track of entering and exiting bus passengers during a simulation, and even disassembling and reassembling a household drainpipe, students in kindergarten and first grade had the opportunity last spring to display verbal-linguistic, spatial, logical mathematical, and personal intelligences.

Groups of approximately six or seven identified START children are placed in target classrooms. Their teachers participate in extensive, on-going staff training for developing curricula which utilize the child's intelligence strength to foster development of skill in language and math, as well as focusing on talent development in the intelligence areas themselves. START classrooms also have a multicultural, manipulative, and language-rich emphasis because of strong research indications of the effectiveness of such instruction for low SES and culturally diverse populations.

Further, all START schools have Family Outreach Programs which concentrate on making parents aware of the potential of their youngsters, helping family members participate in developing that talent at home, and involving parents in their child's

school in a variety of ways. In some START schools, identified youngsters also work with community mentors who serve both to encourage talent development in areas of student strength and also to encourage general student success in school.

Staff members at the University of Virginia site of The National Research Center on the Gifted and Talented serve a dual role in Project START. They work as consultants for curriculum development, staff training, and development of family outreach and mentorship elements of the program. In addition, they have major responsibility for conducting an extensive 3-year research study, using both qualitative and quantitative methods, to determine the impact of the various interventions (e.g. START instruction, mentorships, family outreach) on achievement and attitudes about self and school. Further, they are studying the process through which teachers may come to differentiate instruction in START classrooms, and the impact of the program on families.

Project START should yield a variety of benefits beyond the obvious ones for participants and their families. In Charlotte, START will serve as a pilot for employing multiple intelligence identification and service throughout the school district's program for gifted and talented youngsters. For a much broader audience, START will shed light on strategies for identifying and nurturing talent in economically disadvantaged and culturally diverse populations, and provide insight on ways in which teachers can learn to adjust their instruction to invite success among diverse student populations and in expanded talent fields.

A Follow-up Study of the [I]nteraction Effects on the [C]lassroom Practices Survey

[J]. W. Brown
[R]. s X. Archambault, Jr.
[W] Zhang
[K] L. Westberg
[U] of Connecticut
[St]

Introduction

[I]t is clear that an alarmingly large [n]umber of gifted and talented students [a]re unchallenged in our nation's [s]chools. Few comprehensive [p]rograms for the gifted exist, and [t]hose gifted students who do get [s]pecial attention receive it for as little [a]s 2 or 3 hours per week in a resource [r]oom setting, with little or no [m]odification in their regular [cl]assroom activities (Archambault, [W]. Brown, Hallmark, Zhang, [K]. 1993; Council of State Directors, 1987; Cox, Daniel, & Boston, 1993; Westberg, Archambault, Dobyns, & Salvin, 1993). Studies by Archambault et al. (1993) and Westberg et al. (1993) have focused on classroom practices with gifted and talented students in regular classrooms across the United States using the responses of third- and fourth-grade teachers. The current study is an extension of this research conducted by The National Research Center on the Gifted and Talented (NRC/GT). The purpose of this study is to examine the factors that may affect the classroom practices of teachers with average and gifted students in the regular classroom.

The questions addressed by the current study are related to certain teacher and student demographic variables. There were three specific questions.

(1) What is the relationship of the teacher's experience to his/her instructional practices with average and gifted students?
(2) What is the impact of specific teacher training in gifted education on both the gifted and average students?
(3) What is the impact of the presence of various numbers of gifted students within classrooms on the teacher's instructional practices for all students?

Prompted in part by a series of studies and reports critical of tracking and homogeneous ability grouping (Carnegie Task Force on the Education of Young Adolescents, 1989; Goodlad, 1984; Oakes, 1989; Slavin, 1981; Toepfer, 1990), many school districts across the country are in the process of eliminating or downsizing their gifted programs and services. Thus, it is becoming increasingly apparent that the needs of gifted learners must be met in the regular classroom. Unfortunately,

recent research (Archambault et al., 1993; Westberg et al., 1993) has found that the majority of regular classroom teachers are doing little to address these needs, and this result applies to classrooms and students in all regions of the country. These results are discouraging for supporters of gifted education, many of whom have long argued that a student's educational program should be determined by his or her needs, abilities, and interests (Gallagher, 1985; Maker, 1982; Parke, 1989; Passow, 1982; Renzulli, 1977; Ward, 1980) and that any single educational experience will not benefit all students equally (Parke, 1989; Stewart, 1982). Although there is some evidence (Westberg et al., 1993) to suggest that certain classroom teachers are able to meet these students' needs, we do not know at this time what distinguishes these teachers from the large majority of teachers who cannot, or will not, modify their instruction for gifted students.

Much has been written about the personal characteristics, competencies, and behaviors that distinguish outstanding from average teachers of the gifted (e.g., Story, 1985; Whitlock & DuCette, 1989). Research has also shown that gifted students prefer teachers who are older and more experienced (Bishop, 1967) and that teacher attitudes toward the gifted and talented are related to the amount of teaching experience (Rubenzer & Twaite, 1979). Thus, it appears that teaching experience may influence both how gifted students view teachers and how teachers view students. Despite a good deal of recent research on preservice and beginning teachers (e.g., Kagan, 1992), we know surprisingly little about the effect that teaching experience has on teaching behavior viewed over the longer haul, particularly the delivery of instruction to gifted students in the regular classroom.

According to Schack and Starko (1990), inservice training programs have traditionally been the major vehicle for preparing teachers to meet the needs of the gifted. Research also suggests that teachers' attitudes, beliefs, and practices can be influenced by training received at the preservice level (Kobalia, 1984, 1986; Leyser & Abrams, 1983; Parish, Nunn, & Hattrup, 1982). However, we know very little about the differential effect of preservice and inservice training on the types of instruction delivered to gifted students. We also know little about how teacher behavior is affected by the number of gifted students in their classrooms. Perhaps greater numbers of gifted students reduce the teacher's ability to meet individual needs. On the other hand, faced with a critical mass of gifted students, teachers might be motivated to become more familiar with gifted education practices and, therefore, be more able to meet their needs.

Methods

Instrumentation

The Classroom Practices Questionnaire (CPQ) is a six-page instrument focusing on the teacher, school district, classroom issues, and classroom practices. The original sample consisted of 8,000 third- and fourth-grade school teachers randomly drawn from the four Bureau of Census regions of the country and three community types (urban, suburban and rural). The CPQ was mailed to the teachers in the winter of 1991. The return rate was approximately 50%; 3,993 total respondents. A complete description of the sampling procedure and the structure of the CPQ is presented in Archambault et al. (1993).

On the CPQ, teachers reported the frequency of 39 individual classroom practices that they employed with average and again with gifted students. Frequencies were reported on a 6-point scale ranging from 0 to 5 (Scale: *0 = Never; 1 = Once a month or less frequently; 2 = A few times a month; 3 = A few times a week; 4 = Daily; 5 = More than once a day*). Earlier analyses of the CPQ indicated that there are six factors related to the classroom practices of teachers with gifted and average students, and that these instructional practices occurred slightly more frequently with gifted students than with average students. These factors were: (1) questioning and thinking; (2) providing challenges and choices; (3) reading and written assignments; (4) curriculum modifications; (5) enrichment centers; and (6) seatwork.

A repeated measures MANOVA with follow-up analyses was conducted. The model included the demographic variables (teaching experience, the amount of training, and the number of gifted students in the classroom) as the dependent variables and the type of student (average vs. gifted) and the six factor scores of the CPQ as the independent variables. The actual number of teachers' responses in each analysis varied according to the amount of missing data. The actual number of respondents for each analysis will be reported for each of the three demographic variables.

Training Experience

Teaching experience was categorized into five levels [1 = <6 years, (n = 157); 2 = 6-10 years, (n = 180); 3 = 11-15 years, (n = 178); 4 = 16-20 years, (n = 259); 5 = >20 years, (n = 303)] (N = 1077). The analyses revealed significant interactions between teacher experience and the type of student ($F = 3.31$, $p < .01$) and between teacher experience and the six factors ($F = 3.60$, $p < .01$). Follow-up analyses indicated that as teacher experience increased, differences in the average and gifted.

(Continued on page 8)

(Continued from page 7)

favoring the gifted students (i.e., differentiated instruction) also increased. This suggests the more experienced the teacher, the greater the differentiated curriculum for the gifted student(s).

The follow-up analyses for the interaction of teacher experience and the six factors across both types of students revealed that only the seatwork factor (factor 6) produced a significant effect ($p < .05$). Additional analyses indicated that the least experienced teachers reported assigning seatwork significantly less than those with 15 years or more of teaching experience. Thus, more experienced teachers appear to be more likely to assign seatwork than their younger colleagues.

Training

The amount of training in gifted education that teachers reported was coded into three separate groups [1 = no training, (n = 364); 2 = district or workshop training (n = 349); and 3 = college/university courses or a degree program, (n = 325)] (N = 1,038). The analyses of the training effect revealed a significant main effect for the training variable (F = 24.39, $p < .01$), as well as significant interactions between training and type of student (gifted and average) (F = 4.88, $p < .01$) and between training and the six factors (F = 4.41, $p < .01$).

Follow-up analyses indicated that teachers with either type of training (district or formal university training) reported making greater differentiation between the average and gifted students for factors 1, 2, 3, and 5. For factor 4, curriculum modifications, teachers who had district or workshop training provided greater differentiation than teachers who had no training. Also, teachers who had university training provided greater differentiation than those with district or workshop training. The higher the level of training, the greater the curriculum modifications. Interestingly, only factor 6, seatwork, yielded no differences in the classroom practices according to the amount of training, possibly because few gifted programs focus on assigning seatwork to students.

The Number of Gifted Students in the Classroom

The number of formally identified gifted children in the classroom was coded into three separate groups [(1 = 1-2 students, (n = 504); 2 = 3-4 students, (n = 293); 3 = >4 students, n = 272)] (total N = 1,069). The analyses yielded a significant interaction between the number of gifted students and the factors (F = 3.71, $p < .01$), but there was no significant main effect for the number of gifted students ($p > .05$).

The interaction indicates that for factors 1, 3, 5, and 6, (questioning and thinking, reading and written assignments, enrichment centers, and seatwork) there were no differences in the classroom practices reported by teachers according to the number of gifted students in their class. However, for factors 2 and 4 (providing challenges and choices, and curriculum modifications) there were significant differences ($p < .05$). For factor 2 there was no difference in the classroom practices when teachers had between 1 and 4 gifted students in their classrooms, but when they had 5 or more gifted students, the challenges and choices for **all students** increased. For factor 4, there was a significant difference ($p < .05$) in the amount of curriculum modifications made for all students when the class contained between 1 and 2 gifted students and when there were greater than 4 gifted students), but neither group was significantly different from teachers having 3 and 4 students.

Discussion

By examining the classroom practices of teachers with average and gifted students, examining teaching experience, teacher training, and the presence of different numbers of gifted students on regular classroom practices with all students, these results extend the findings of earlier research focusing on classroom practices. The conclusion that the more experience teachers have, the greater their ability to differentiate their instructional practices for gifted and average students is not surprising, but the extremely small actual difference among the training levels is discouraging. On a 6-point scale, the maximum mean difference between the experience levels was 0.06 for the average and 0.12 for the gifted students, with a maximum difference between the gifted and average students of 0.20 for the most experienced teachers. As experience increased, so did the difference in the treatment of average and gifted students, but again, the differences were very small.

The finding that teacher training in gifted education benefits all students is one that has been hypothesized by gifted educators for years. The current study provides evidence supporting this position. The classroom practices of those teachers trained in district or special workshop programs, and those with university or college training increased their classroom practices for all students, in every factor/practice except the use of seatwork. Additionally, college/university training had a significant impact above and beyond district and workshop training for modifying the curriculum with average students as well as gifted students.

Finally, the number of formally identified gifted students did not have an impact on the differences in several of the practices used with gifted and average students. Having greater than 5 gifted students in the classroom appears to positively impact the

challenges and choices and curricular modifications that classroom teachers provide to average and gifted students.

Conclusions

The present study provides evidence that training in gifted education and the presence of gifted and talented students in the regular classroom positively impact the instructional practices of teachers for both gifted and average students. Teachers with formal training in gifted education (as opposed to district inservice training or no training at all) provided more curricular modifications for gifted students, and this finding should be of particular interest to individuals in higher education and school administrators. It suggests that administrators may want to examine prospective teachers' transcripts to see if teachers were enrolled in courses on meeting students' individual needs and courses in gifted education. The finding further suggests that faculty and administrators in higher education should make sure that their institutions offer these courses and encourage all education majors to enroll in them.

In addition to noting the benefit of formal training in gifted education, school personnel should be aware of the impact that district inservice training had on some of the practices used by teachers with gifted and average students, i.e., questioning and thinking, challenges and choices, reading and writing assignments, and enrichment centers. It reaffirms the "need for" and "benefits of" staff development at the district level. It also suggests, however, that training on how to modify the curriculum has been inadequately addressed or has not been provided at all in staff development programs.

The data from this study suggest that the number of formally identified students in classrooms does not have an impact on most of the teachers' classroom practices. However, the research finding that having more than 5 gifted students in the classroom results in more "challenges and choices" being provided to both gifted and average students is particularly intriguing. This suggests that the "cluster model" in gifted education has noteworthy outcomes. The "cluster model" (placing several gifted students into one regular classroom with a trained teacher) has not been used as much in recent years and, perhaps, it should be reconsidered as a viable provision for meeting the needs of gifted students in the regular classroom. While there is certainly no consensus in the literature about the most appropriate delivery system for gifted students, the results of this study suggest that if the needs of gifted are to be met within the regular classroom, we should consider the training of the classroom teacher and the student composition of the classroom.

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The Paradox of Academic Achievement of High Ability, African American, Female Students in an Urban Elementary School

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Great Falls, MT

This qualitative study investigated the school experiences of 12 high ability, African American female elementary students in an urban school. The purpose of the investigation was to examine the self-perceptions these students held regarding their academic success and to explore why some high ability females achieve in this school setting, while other high ability females underachieve. For several decades, high ability children who do not achieve scholastically at levels commensurate with their mental abilities have been the focus of considerable concern of educators. While research has identified variables that have influenced the underachievement of high ability students, a paucity of research focuses on the achievement of high ability, African American females at the elementary school level. This study offers additional insight into the underachievement phenomena experienced by females in grades 4, 5, and 6 who live in an urban setting.

Through participant observation, ethnographic interviews, and document review, factors were identified which may influence patterns of achievement and underachievement in this population. The perceptions these females held regarding the reasons for their academic achievement/underachievement, and the factors which influenced their academic achievement/underachievement were also explored.

Findings from this study indicate that numerous differences existed between the students who achieved and those who underachieved in this urban elementary school. The high ability achievers had a strong belief in self; employed learning and behavioral strategies which maintained their academic performance and regulated the effects of the negative peer culture; and acknowledged the importance of numerous support systems on their achievement including school- and community-sponsored extracurricular events, teachers, and the immediate and extended family network. The high ability underachievers employed negative behaviors to maintain their belief in self; adopted learning and behavioral strategies that made them vulnerable to academic failure; were unsuccessful in managing and regulating their peer culture; and acknowledged fewer support systems.

Effects of Teacher Training on Student Self-Efficacy

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Over 15 years of research has been conducted in the field of self-efficacy since Albert Bandura's seminal article was published in 1977. The popular construct has been applied to areas ranging from snake phobias to basketball free throw shooting averages. Although its educational implications have been extensively researched, little research had investigated the purpose of this study, which was to assess changes in students' self-efficacy and achievement after staff development on self-efficacy was conducted with their teachers.

A pretest posttest control group quasi experimental nested design using a volunteer sample of intact groups was used. The sample included 872 fifth grade students (n = 435 males; n = 432 females) from a volunteer sample of 10 school districts in 6 states with 15 schools and 40 fifth grade classrooms.

This study consisted of two phases. In the first phase, the classroom teachers from the schools assigned to the treatment group received a handbook on self-efficacy and attended a videotape inservice training session on self-efficacy instructional strategies. The teachers of the control classrooms did not receive any special training.

During the second phase of the study, all of the teachers taught a 4-week

mathematics measurement unit provided by the researcher. The treatment group teachers were expected to use the classroom management techniques demonstrated and practiced in the training workshop while teaching the mathematics unit.

Students of teachers who were trained in self-efficacy strategies showed significantly higher mathematics self-efficacy after 4 weeks of mathematics instruction than students of teachers who were not trained in self-efficacy strategies. No practical achievement differences were found between the two groups, although possible differences may have been limited by the curriculum of the measurement unit. No practical gender differences were found. There also was no interaction between experimental group and gender, nor between ability level and treatment. Students of all ability levels benefited from the self-efficacy strategies.

This study demonstrated that teachers can modify their instructional strategies with minimal training and that significant increases in student self-efficacy can be achieved during a short time period with minor changes in instructional style.

Regular Classroom Practices with Gifted Students in Grades 3 and 4 in New South Wales, Australia

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The Regular Classroom Practices Survey (RCPS) was conducted to determine the extent to which gifted and talented students received differentiated education in the regular classroom across New South Wales. This research paralleled the Classroom Practices Study completed in the United States. The survey focused on information about the teachers, their classrooms, and regions. Classroom practices, in relation to the curriculum modifications for gifted and average students, were analyzed. The survey sample was drawn from the three sectors of education: government, Catholic, and independent schools, within the 10 regions of New South Wales. This included 401 third and fourth grade teachers in government schools, 138 teachers in Catholic schools, and 67 teachers in independent schools. The research questions that guided this study were:

(1) Do teachers modify the curriculum content to meet the needs of gifted students?
(2) Do teachers modify their instructional practices for gifted students?
(3) Are there any organizational variations in planning to meet the educational needs of gifted children?
(4) Are there differences in the types of regular classroom services provided for gifted students in relation to the type of school or region?

Provisions for the gifted included variations in the content taught, the organizational strategies, and the instructional techniques used in the classroom. As the American study found, this survey showed that third and fourth grade teachers make only minor modifications in the regular curriculum to meet the needs of gifted students. Teachers who provided for gifted students encouraged participation in discussions, asked open ended questions and questions that required reasoning and logical thinking. However, these strategies were not unique for the gifted students. This result was apparent for all samples. One reason for the lack of provision made for gifted students may be the limited number of qualified teachers in the education of gifted students. It was found that 46 percent had no training in the area. In addition, there was a high percentage of teachers who had no knowledge of the current practices or options available for gifted students within their school or region.

The Successful Practices Study

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The following quote by John F. Kennedy exemplifies the attitude found in these successful schools:

> *Not every child has an equal talent or an equal ability or equal motivation, but children have the equal right to develop their talent, their ability and their motivation.*

Can you name a school that has a reputation for meeting the individual needs of students and, specifically, the needs of high ability students? If you can name one, do you know how or why this is occurring? These were among the questions that guided the University of Connecticut site of The NRC/GT as we conducted the Successful Practices Study. The research was designed to extend information gained from studies in 1990-91 conducted by the University of Connecticut. These included the Classroom Practices Study, which revealed that little instructional and curricular differentiation for bright students was occurring within the majority of regular classrooms throughout the country, and the Curriculum Compacting Study, which indicated that teachers who modified the curriculum for high achieving students could eliminate a substantial amount of their regular curriculum without any significant decrease in students' standardized test scores.

The overall purpose of the Successful Practices Study was to gather qualitative data to describe the practices used for meeting the needs of high ability students in third, fourth, and fifth grade classrooms. Purposive sampling was used to select 10 elementary school sites, and ethnographic case studies were conducted at each site (two urban, six rural, and two suburban.) The researchers, who spent several months gathering observational and interview data for the study, were Linda Emerick, Thomas Hays, Thomas Hébert, Marcia Imbeau, Jann Leppien, Marian Matthews, Stuart Omdal, and Karen Westberg. They wrote case studies describing the findings at each site, which will be part of a research monograph on the Successful Practices Study.

The findings from the study are informative and varied. In some situations, the classroom teachers implemented curriculum modification procedures, employed flexible grouping practices, provided advanced level content, or provided opportunities for advanced level projects. At some of the sites, the teachers collaborated with the other teachers at their grade level or with district curriculum specialists to provide more academic challenge to talented students. In some situations, the teachers and parents described the leadership of school principals or superintendents whom they believed were responsible for teachers' instructional practices, and some of these administrators were also strong advocates for the schools' gifted education programs.

Several themes emerged across the 10 sites, including the three themes below. First, the students were viewed as individuals, not as a conglomerate of young people in classrooms. Teachers had a vision for students, not a general "curriculum plan," that guided their efforts. If students already knew the content or how to do something, teachers would modify the curriculum and move on! Second, the educators in these schools were not satisfied with the status quo; they were making changes. They were not just providing lip service to the "reform movement" or "excellence in schools"; they were actively making changes, even when it meant experimenting with new programs and practices. They weren't afraid of change; they embraced it! And finally, a supportive attitude toward capable students was expressed by individuals at these sites.

As with all qualitative research, it is not appropriate for the researchers to make generalizations; rather, the consumers decide if generalizations are warranted. In the Successful Practices Study, the findings from each of the 10 sites and the themes across sites will, hopefully, inform practice and policy making.

Motivating Our Students:
The Starting Force of Curriculum Compacting

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One of t[illegible]ommon complaints by today's [illegible]ts appears in a statement [illegible]her receives very well — "A[illegible] This is BORING!" Frantically, [illegible]acher searches her files for so[illegible]ickie" activity that will motivate [illegible] invigorate her students with [illegible]passion for learning she had hoped to inspire. However, as Sally Reis, [illegible]ah Burns, and Joseph [illegible]nzulli ([illegible]f The National Research C[illegible]n the Gifted and Talented a[illegible]niversity of Connecticut discovered, love for learning ha[illegible] halted for many students by [illegible]of repetition within the classroom. [illegible]any students have already mastered [illegible]he material being taught [illegible]uickly tune out. As the [illegible]iscovers, neither a fantastic lesson nor harder work will stimulate these students. "The sad result is that our brightest students are often left repeating lessons they already know, which can lead to frustration, boredom and ultimately, underachievement" (Reis et al., 1992, p. 2). As a result, Reis et al. devised a strategy for enhancing student achievement called "curriculum compacting." While it was designed for exceptionally bright students, the inherent fostering of positive perceptions of both competence and control allow this strategy to be used by teachers as a motivational tactic within the entire classroom.

What is Involved in Motivation?

It is important to understand the underlying principles of motivation when considering its place in curriculum compacting. An excellent reference to the components of motivation is Cheryl Spaulding's (1992) *Motivation in the Classroom*. In her book, Spaulding discusses the two key components of a student's perceptions of competence and control in the classroom and then relates six important principles underlying motivation. When referring to motivation, researchers (Deci, 1975; Deci & Ryan, 1985; Lepper & Green, 1978) find that two generic types usually occur—extrinsic and intrinsic. As Spaulding notes,

> Individuals are extrinsically motivated when they engage in an endeavor because they expect, as a consequence, to secure a reward or avoid a punishment. In contrast, individuals are intrinsically motivated when they engage in an endeavor because of an inner desire to accomplish a task successfully, irrespective of the rewards or punishments associated with it. (Spaulding, 1992, p. 8)

It is the "inner desire" that we, as teachers, want to and can stimulate in our students through curriculum compacting.

(Continued on page 14)

COMMENTARY

(Continued from page 13)

The crucial elements to enhancing intrinsic motivation emerge from students' perceptions of their place in the classroom. The relationship between perceptions of competence and perceptions of control develops as a child matures throughout her school life. Fostering these self-perceptions should be a goal of teachers, in order to allow the students to feel confident in the task at hand and experience a positive learning situation. Spaulding (1992) further notes six instructional and management principles effective in guiding teachers to stimulate their students' intrinsic motivation. Essentially, these six principles involve creating a classroom that

(1) creates a highly predictable environment,
(2) allows for an appropriate balance between challenging and easy tasks,
(3) provides a sufficient amount of instructional support,
(4) promotes control opportunities,
(5) avoids social comparisons of students, and
(6) presents novelty, uncertainty, and challenges to the student

Curriculum compacting, as a strategy for motivating students, supports three of the major principles of intrinsic motivation, as defined above by Spaulding (1992).

Creating Novelty, Uncertainty, and Challenges

The first principle deals with the importance of providing students with interesting and challenging options within the classroom. Spaulding supports the notions of both making class exciting, and yet also promoting the value of academic interests, in order to develop and maintain intrinsic motivation, even if the task is not novel and unusual (1992). Reis et al. (1992) agree with providing novel academic experiences for students in order to challenge them and stimulate intrinsic motivation. Two of the rationales for compacting the curriculum focus on avoiding repetition and meeting the needs of the students. First, they note past research indicates

> students already know most of their text's content before learning it....In a more recent study dealing with average and above-average readers, Taylor and Frye (1988) found that seventy-eight to eighty percent of fifth- and sixth-grade average readers could pass pretests on basal comprehension skills *before* they were covered by the basal reader. (Reis et al., 1992, p. 12)

Second, Reis et al. note that many of the needs of high ability students are not met in the classroom. As a result, many students react negatively to a classroom environment they perceive as boring. Ultimately, many bright students believe the best way to cope in the classroom is to do just enough to keep the teacher satisfied—nothing more, nothing less.

The practice of compacting the curriculum for students who show high mastery of a subject area provides students with challenging, yet exciting activities they can pursue with high perceptions of competence and control. The alternatives are numerous, all geared to create exciting options for the student and to promote a positive learning experience from which he/she will *want* to engage in more exploration. Reis et al. (1992) categorize the alternatives around five organizational topics: enrichment in the regular classroom; resource rooms; acceleration; off-campus experiences; and districtwide, schoolwide, or departmental programs. Such an adaptable list of activities allows both the student and teacher to investigate the options and focus on the student's interests. Reis et al. have appropriately utilized the strategy of presenting novel and challenging independent studies in the classroom—they understand the importance of the student's interests as key factors in motivation.

Providing Instructional Support

As described above, curriculum compacting is a strategy to restructure the regular curriculum for those students who have already mastered the required objectives. In doing so, teachers provide much support for these students by guiding them to the appropriate resources for a successful independent study. Reis et al. (1992) insist, in another rationale supporting curriculum compacting, that modifying both the pace and structure of instruction according to the individual student's needs are key elements in maximizing achievement, particularly for bright students.

Essentially, teachers monitor the actions of the students, allowing them to manage their time and how they will investigate their topic of study. By individualizing instruction,

> initial assessment determines where students should begin, and then the students work through the curriculum independently. In individualized programs, students receive more of their content instruction from the curriculum materials than from the teacher, who acts more as a materials manager, tester and progress monitor than as an instructor. (Reis, Burns, & Renzulli, 1992, p. 58)

When compacting the curriculum for a student, utilizing the management plan, "The Compactor," ensures that the student will have a successful experience based on individual abilities, further stimulating internal perceptions of competence. By eliminating the amount of time previously spent on repetitious material, the student is able to focus on activities that are personally more meaningful. Reis et al. (1992) insist

that the teacher quietly monitors the student's progress, making sure to provide the necessary support, but allowing ultimate decisions to be made by the student. Such freedom to successfully accomplish a task designed around one's own interests inevitably promotes intrinsic motivation through self-perceptions of competence and control.

Promoting Control Opportunities

A third, and final, theoretical principle of intrinsic motivation emerges within the strategy of curriculum compacting. While "The Compactor" structures instructional support in a way that promotes perceptions of competence within the student, the enrichment activities pursued during the time saved by compacting also encourage self-perceptions of control. Reis et al. (1992) strongly urge that student interest be considered to ensure a successful compacting experience. "Building educational experiences around students' interests is probably one of the most recognizable ways in which schoolwide enrichment programs differ from the regular curriculum" (Reis et al., 1992, p. 103). This assertion stems from past research that indicates students object to limited choices within the confines of the curriculum and, as a result, negatively view the classroom as a place of very few opportunities. However,

> this is not to say that every independent study situation should be without limits. The teacher's own strengths and interests may lead him or her to place certain restrictions on general areas of study (for example, futuristics, colonial history, geology), but *within* these broad areas a great deal of freedom should be allowed in the selection of specific topics or problems. (Reis et al., 1992, p. 103)

While student interests should be identified by the teacher, Reis et al. warn the teacher not to push a student into independent study at the first sign of interest. Rather, they should encourage exploratory work around an area of interest through "Interest Development Centers." A student's interest can be piqued by including resources that disclose the process or methodology skills that an adult would use in a career field; narrative information; suggestions for specific activities, experiments or research; community resources; and display items.

Obviously, "Interest Development Centers" allow students to take control of learning the subject presented by the teacher. Along with the choice in enrichment activities, such centers provide an abundance of options for the student, a crucial element in curriculum compacting. To a student, the ability to make a choice equals an element of control within the classroom. Ultimately, this perceived control, along with perceptions of competence, will most likely lead to a love for independent learning.

Conclusion

Ultimately, the perceived elements of competence and control by students whose curriculum has been compacted stimulate intrinsic motivation. Reis et al. (1992) have developed a plan that allows a student to explore options, resulting in successful learning experiences and an inner desire to do more. Curriculum compacting revolves around the student and his/her interests—the teacher is merely a guide, a person there to provide support should the student need it. Sally Reis, Deborah Burns, and Joseph Renzulli have appropriately recognized the importance of individuality in structuring today's curriculum.

> All students need learning experiences appropriate to their individual abilities, interests, and learning styles. Individual uniqueness should be respected and provided for; and every effort should be made to adapt learning experiences to their development. (Reis et al., 1992, p. 62)

As an attempt to counter the problem of waning motivation, curriculum compacting emerges as a bold, progressive step to modify an otherwise outdated classroom structure. This classroom strategy promises to excite, enrich, and motivate our students—our future.

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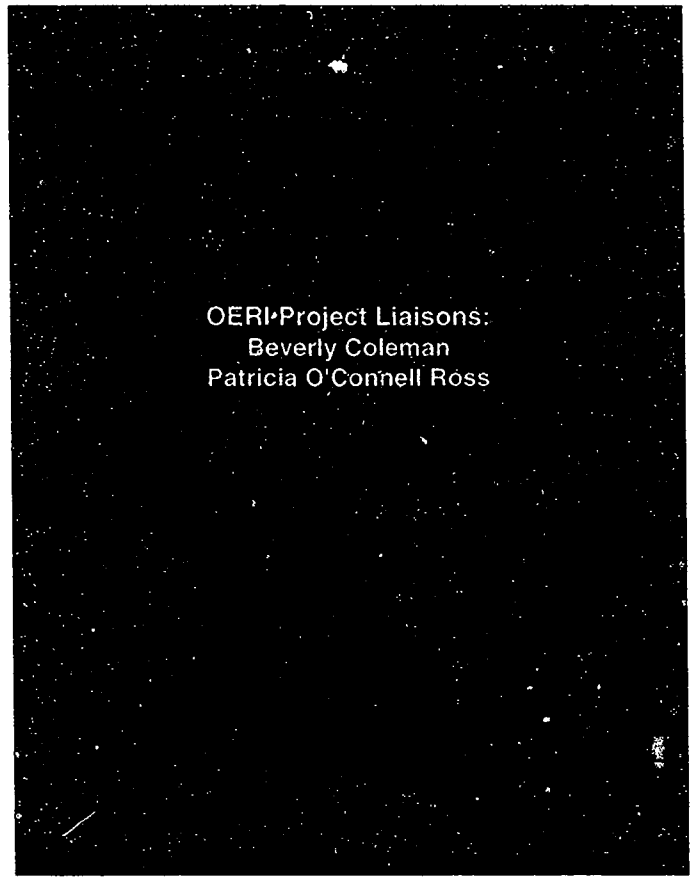
NEWSLETTER



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