

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

## Collaborative Researchers and Writers Wanted for the NRC/GT

*E. Jean Gubbins*

The University of Connecticut  
Storrs, CT

*assessment methods (including economically disadvantaged individuals, individuals of limited English proficiency, and individuals with handicaps) and to education programs designed to include gifted and talented students from such groups.*

**O**ur proposal for Year 4 (1993-94) of The National Research Center on the Gifted and Talented has been submitted to the United States Department of Education, Office of Educational Research and Improvement, and we are reviewing the scope of our work that will reach its conclusion in May 1995. As all of you know, the NRC/GT is funded by the Jacob K. Javits legislation. The priority of the Javits Act follows:

*The identification of gifted and talented students who may not be identified through traditional*

All of the research that we implement is based on this priority and the results of our National Research Needs Assessment Survey. We are involved in 20 research studies to date that have been highlighted in our newsletters. We have also commissioned papers for our *Research-Based Decision Making Series* on topics and issues that are pertinent to the future directions of gifted and talented education. To ensure that we are addressing as many issues as possible and representing the multiple viewpoints of practitioners and researchers, we would like to once again ask for your involvement with our work.

(Continued on page 2)

### Inside

Curriculum Compacting ....	3
News Briefs .....	4
<i>Commentary</i>	
Thinking Skills .....	6
Ability Grouping .....	8
Preschool Gifted .....	10
Future Problem Solving .....	12
<i>Research in Progress</i>	
Metamemory .....	13
Underachievement .....	13
National Assessment ...	13
<i>Recent Research</i>	
Programming Status ....	14
Science Process Skills ..	14
Family Factors .....	15
Rural Settings .....	15

### New Consultant Bank Members

**Robert Abelman**  
Cleveland State University  
Cleveland, OH

**Ernesto M. Bernal**  
University of Texas-Pan American  
Edinburg, TX

**Anne L. Corn**  
Vanderbilt University  
Nashville, TN

**June R. Cox**  
Texas Woman's University  
Denton, TX

**Alexis I. Du Pont De Bie, Sr.**  
Charlottesville, VA

**Marilyn Schoeman Dow**  
ThinkLink  
Seattle, WA

**James F. Undercofler**  
Minnesota Center for Arts Education  
Minneapolis, MN

**James M. Patton**  
The College of William and Mary  
Williamsburg, VA

**Edwina D. Pendarvis**  
Marshall University  
Huntington, WV

**Hilda Rosselli**  
University of South Florida  
Tampa, FL

**Mary K. Tallent-Runnels**  
Texas Tech University  
Lubbock, TX

**John Samara**  
The Curriculum Project  
Austin, TX

**Dorothy Ann Sisk**  
Lamar University  
Beaumont, TX

**Den-Mo Tsal**  
Taitung Teachers College  
Taitung, Taiwan R.O.C.

**James H. Williams**  
Howard University  
Washington, DC



(Continued from page 1)

There are three ways that you can become more involved in the NRC/GT projects. The first is through Collaborative Research Studies, the second is the *Research-Based Decision Making Series*, and the third is through the *NRC/GT Newsletter*. Each of the projects will be highlighted for your consideration.

### Collaborative Research Studies

At the American Educational Research Association Conference in April 1992, we initiated Collaborative Research Studies with our Consultant Bank members. Several studies are in progress and others are welcomed. Collaborative researchers have access to other researchers in our Consultant Bank, and they have the opportunity to conduct their research with our Collaborative School District network. If you are interested in pursuing a research project, please submit a letter of intent, a three page synopsis of your proposed project, and a vita. The synopsis should address the Javits priority and one or more of the recommendations of the National Research Needs Assessment Survey. The research recommendations from the Needs Assessment Survey were in the *NRC/GT Newsletter* (June 1991) and the monograph entitled, *Setting an Agenda: Research Priorities for the Gifted and Talented Through the Year 2000*. The recommendations include a need for studies on program effectiveness, motivation, teacher training, curriculum modifications, and underachievement.

Your submission for the Collaborative Research Study will be reviewed by the NRC/GT staff, and we will determine the resources that will be made available to you if your project is accepted. The resources may include research sites, co-researchers, and possibly a small honorarium to cover expenses.

### The Research-Based Decision Making Series

The second project that may be of interest to you is becoming involved as a writer for our *Research-Based Decision Making Series*. The series provides practitioners with research-based information that has direct implications for identification, teaching practices, program organization and development, and policy development. Thus far these papers have focused on ability grouping, cooperative learning, self-concept, arts identification, television and kids, creativity, reading, and evaluation. Topics for other papers that are in various stages of completion include: college preparation, science, mathematics, counseling, and underachievement, to name a few. If you are interested in preparing a paper for the *Research-Based Decision Making Series*, please submit a letter of intent, a three page synopsis,

vita, and a writing sample of an article that has practitioners as the major audience. The synopsis will be reviewed by the NRC/GT staff for relevance to the Javits legislation and the potential impact of the research-based information for policy makers.

### The NRC/GT Newsletter

The third project also involves writing. We have encouraged people in the past to contribute to the *NRC/GT Newsletter*, and we have received some excellent materials for the following sections:

#### • Commentary

Articles for the Commentary section should be approximately 1,000 words. The articles should focus on research issues, curriculum development projects, identification strategies, or evaluation techniques.

The Commentary section could also be a review of books, journal articles, or audio-visual training materials.

#### • Research in Progress or Recent Research

Abstracts of approximately 200 words describing research projects in progress or recently completed research are requested. You should encourage readers to contact you for follow-up information or use the abstract as an opportunity to find out if other researchers are pursuing hypotheses along similar lines.

#### • Just Off the Press

Articles of approximately 500 words should highlight books, articles, and research reports that translate research findings into practice.

We are pleased with the response to our publications and hope that more people will become involved in the work of the NRC/GT.

#### New Districts Involved With the NRC/GT

Flagstaff Unified Schools #1  
Flagstaff, AZ

Seaford School District  
Seaford, DE

Quincy Community Schools  
Quincy, MI

Granville County Schools  
Oxford, NC

Tacoma Schools  
Tacoma, WA



## Teachers' Attitudes Toward Curriculum Compacting: A Comparison of Different Inservice Strategies

*Marcia Boatright Imbeau*

The University of Arkansas at Fayetteville  
Fayetteville, AR

**H**igh ability students frequently spend time in school completing assignments they have already learned because teachers too often follow an outline prescribed by textbooks without regard to students' capabilities or previous mastery. Curriculum compacting exists to assist teachers with a strategy to provide students with an appropriate and challenging curriculum. The purpose of this recent research was to determine the combination of teacher variables and staff development strategies that influence teachers' use of curriculum compacting. Teachers' attitudes toward making curricular modifications was the dependent measure in the study. The influence of the years of teaching experience, graduate gifted education credits, and training with follow-up activities was also examined.

A quasi-experimental design (non-equivalent control group) was used to examine three different treatment groups and one control group of teachers. One hundred and sixty-six teachers representing grade levels 1-12 within a large, urban school district comprised the sample. Teachers in the control group did not receive any training or follow-up assistance. Teachers in the treatment groups received a full day of inservice training by the researcher and different types of follow-up assistance during the second semester of the school year. Follow-up assistance involved contact with the researcher to provide technical assistance and encouragement for Group 1, teacher to teacher coaching (peer coaching) for Group 2, and district program specialists coaching (district coach) for Group 3.

Statistical analyses were used to examine the manner and the degree to which the following variables affect teachers' attitudes toward curriculum compacting:

- number of years teaching experience,
- number of graduate gifted education credits,
- ratings of compactors,
- pretest attitude scores, and
- group membership.

The results indicated that peer coaching (Group 2) had a positive affect on teachers' attitudes toward making curriculum modifications.

**National attention is focused on providing early identification and authentic assessment in primary classrooms.**

**So is this conference.**

**T**he Nebraska Project announces a national training and dissemination conference to help achieve the project's goal: to effect fundamental change at the classroom level in the way primary classroom teachers participate in the early identification of able and creative students.

If you are a

- gifted specialist;
- teacher;
- school administrator;
- teacher educator;
- researcher;
- school board member; or
- parent or classroom volunteer;

and if you are curious or concerned about two of the most talked about topics in education today—developmentally appropriate practice and authentic assessment—you should plan to participate.

The Nebraska Project is funded by the U.S. Department of Education, Jacob K. Javits Gifted and Talented Students Education Program. Its special focus is the early identification of able and creative children from underserved populations.



### Early Identification and Education of High-Ability Learners: With Potential in Mind

- **Sept. 30 to Oct. 2, 1993, in Lincoln, NE**
- Sponsored by the Nebraska Project and the Nebraska Association for the Gifted.
- For more information, call the University of Nebraska-Lincoln Department of Conferences and Institutes, (402) 472-2844, or send a fax to (402) 472-9688.



University of Nebraska-Lincoln  
UNL is a non-discriminatory institution.



# NEWS

## Briefs

### Briefs

### briefs

**T**he Winter, 1993 issue of the *Journal for Education of the Gifted* is a special issue devoted to major research studies carried out by the NRC/GT. Since this journal is only mailed to persons who are members of the TAG Division of the Council for Exceptional Children, many individuals who are interested in the work of The Center probably have not obtained a copy.

If you are interested in ordering this special issue, featuring the latest research from the NRC/GT, or other back issues of the *Journal*, send \$11 (add \$1.50 per copy for addresses outside the U.S.) to Journals Department, UNC Press, P.O. Box 2288, Chapel Hill, NC 27515-2288. Prepayment must accompany all orders.

The NRC/GT also has a small quantity of this issue. Please contact our Dissemination Coordinator, Dawn Guenther (phone 203-486-4676 or fax 203-486-2900) for information about how you can obtain a copy.

• • •

**D**avid Kenny, who served as a principal investigator on the recently completed NRC/GT cooperative learning study, has claimed international fame for the quotability of his research writings, according to The University of Connecticut publication *UConn Advance*. The publication noted that the Institute for Scientific Information (ISI), an organization which counts and maintains records of citations or references in all science fields, says the Connecticut psychology professor was the world's third most frequently cited psychologist during the reporting period of 1986-90. Kenny recently presented his preliminary findings from the NRC/GT study on the impact of cooperative learning groups on gifted students at the American Educational Research Association's annual convention in Atlanta.

**A** new computer bulletin board on gifted education, edited by Mary Ruth Coleman, has been started as a part of SpecialNet. SpecialNet is an electronic bulletin board service with over 40 boards and 6500 members. The gifted education section has been operational since last September and includes:

- *timely information on advocacy issues*
- *ideas for meeting student needs*
- *announcements from national and state organizations*
- *updates on important research*
- *a link with others in the field of gifted education.*

If you have information which you would like announced on the gifted bulletin board, contact Mary Ruth Coleman, Associate Director, Gifted Education Policy Studies Program, NationsBank Plaza, Suite 300, Chapel Hill, NC 27514, phone 919-962-7373, fax 919-962-7328. If you are not a member of SpecialNet and are interested in more information about the service, contact GTE Directories, Education Services, P.O. Box 619810, Dallas, TX 75261-9955, phone 800-927-3000.

• • •

**T**he National Research Center on the Gifted and Talented is beginning a new column in this newsletter. The column will feature strategies that have really "clicked" with high ability students and/or have garnered support for programs for gifted students from teachers, parents, administrators, or school board members. Submissions should be less than 100 words, will need to have been practiced successfully "in the field," and will appear with the name and state of the submitter. Share your most successful practices with people in the field and help others recreate your successful experiences. Ideas should be submitted to Jeanne Purcell, The National Research Center on the Gifted and Talented, The University of Connecticut, 362 Fairfield Road, U-7, Storrs, CT 06269-2007. Please include your name, address and phone number with your submission.

• • •

**W**estern Michigan University will be conducting its second annual CREATE and PDK Evaluation Institute from June 19-24 at the Radisson Plaza Hotel in Kalamazoo, MI. This year the Institute will focus on skill development in the analysis, adaptation, and implementation of evaluation models. The program is relevant for teachers, administrators, researchers and evaluators who work with and assist school personnel in the development and application of personnel evaluation models. For more information, contact Kathy Hueser at 616-387-5895.



# products

## from NRC/GT

### Video Training Tapes

#### Curriculum Compacting: A Process for Modifying Curriculum for High Ability Students

with Dr. Sally Reis

\_\_\_ Includes videotape, facilitator's guide, and teacher's manual - \$118

#### The Teaching of Thinking Skills in the Regular Classroom: A Six-Phase Model for Curriculum Development and Instruction

with Dr. Deborah E. Burns

\_\_\_ Includes videotape and handout packet - \$120

...

### Resource Booklets

#### Content Area Consultant Bank Directory

\_\_\_ Published in December, 1991 - \$10

#### Setting an Agenda: Research Priorities for the Gifted and Talented Through the Year 2000

by Dr. Joseph S. Renzulli, Dr. Brian D. Reid, and Dr. E. Jean Gubbins

\_\_\_ \$5

...

Send orders to:

Dawn Guenther - Dissemination Coordinator  
The University of Connecticut  
The National Research Center on the Gifted and Talented  
362 Fairfield Rd., U-7  
Storrs, CT 06269-2007

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Purchase orders accepted for videotape orders only. Make checks payable to The University of Connecticut. Price includes postage/handling; state tax does not apply.

### Research-Based Decision Making Series Papers

(all papers may be reproduced)

#### The Relationship of Grouping Practices to the Education of the Gifted and Talented Learner

by Dr. Karen B. Rogers

\_\_\_ Full Length Paper Order No. 9102 - \$12

\_\_\_ Executive Summary Order No. 9101 - \$2

#### Self-Concept and the Gifted Child

by Dr. Robert D. Hoge and Dr. Joseph S. Renzulli

\_\_\_ Full Length Paper Order No. 9104 - \$10

\_\_\_ Executive Summary Order No. 9103 - \$2

#### Cooperative Learning and the Academically Talented Student

by Dr. Ann Robinson

\_\_\_ Full Length Paper Order No. 9106 - \$10

\_\_\_ Executive Summary Order No. 9105 - \$2

#### Issues and Practices Related to Identification of Gifted and Talented Students in the Visual Arts

by Dr. Gilbert A. Clark and Dr. Enid Zimmerman

\_\_\_ Full Length Paper Order No. 9202 - \$8

\_\_\_ Executive Summary Order No. 9201 - \$2

#### An Analysis of the Research on Ability Grouping: Historical and Contemporary Perspectives

by Dr. James A. Kulik

\_\_\_ Full Length Paper Order No. 9204 - \$15

\_\_\_ Executive Summary Order No. 9203 - \$2

#### Some Children Under Some Conditions: TV and the High Potential Kid

by Dr. Robert Abelman

\_\_\_ Full Length Paper Order No. 9206 - \$15

\_\_\_ Executive Summary Order No. 9205 - \$2

#### Reading With Young Children

by Dr. Nancy Ewald Jackson and Dr. Cathy M. Roller

\_\_\_ Full Length Paper Order No. 9302 - \$15

\_\_\_ Executive Summary Order No. 9301 - \$2

#### Evaluate Yourself

by Dr. David M. Fetterman

\_\_\_ Full Length Paper Order No. 9304 - \$10

\_\_\_ Executive Summary Order No. 9303 - \$2

#### Creativity as an Educational Objective for Disadvantaged Students

by Dr. Mark A. Runco

\_\_\_ Full Length Paper Order No. 9306 - \$8

\_\_\_ Executive Summary Order No. 9305 - \$2



# Commentary

## Thinking Skills in the Regular Classroom

Deborah E. Burns  
The University of Connecticut  
Storrs, CT

The focus for all of the research studies that are being conducted with The University of Connecticut is on educational practices for talent development and gifted education within the regular classroom. The literature that we have reviewed suggests that *general intellectual ability* is a major factor that affects talent development in all students. It is our belief that improvements in *higher level thinking skills* will also improve students' general intellectual ability.

In a longitudinal study now being conducted by The National Research Center, experimental lessons are being piloted to improve students higher level thinking skills. It is hoped that through the aid of skilled practitioners and with the use of the experimental lessons, students will raise their academic achievement levels and their ability to transfer these skills to real world problem solving and interest-based research projects.

We are attempting to develop and nurture talent in our underserved student population with a two part intervention—thinking skills instruction to improve general intellectual ability and the use of interest-based enrichment options to help students identify their individual strengths and talent areas. Both interventions will take place in the regular classroom with students who represent the priorities of the Javits Act.

We hope students will find that the opportunity to explore their interest areas and to conduct real world problem solving projects will result in multiple benefits. By mentoring students as they conduct projects and investigations, we hope to show them how to develop their knowledge base, their task commitment, and their creativity as well as showing them how to transfer and apply learned thinking skills to real

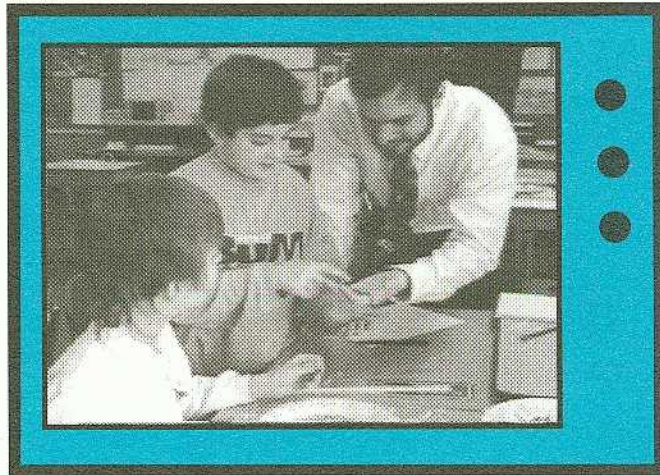
world problems—behaviors that we believe are the hallmarks of giftedness.

We have also concluded that *direct and explicit* instruction in thinking skills is a powerful strategy for helping novice problem solvers improve their cognitive abilities. Our review of the literature suggests that many students have difficulties with several of the higher level thinking skills. Many students jump to hasty conclusions, exhibit dogmatic behavior and are overreliant on the teacher for the "right"

answer.

Others have difficulty with the analytical thinking skills that are so important for academic achievement.

Our literature search has identified *three different approaches* for the direct instruction



Bob Doran is featured here working with students on an observation activity during a recent NRC/GT satellite broadcast on thinking skills.

of thinking skills. These three approaches can be classified as the "stand alone," "content immersion," and the "imbedded instruction" approaches.

The "stand alone" approach focuses the students' attention on the name and nature of the skill, the importance of the skill in varied settings, strategies for using the skill, and dispositions related to the skill. These "stand alone" programs and lessons concentrate on improving one skill at a time and are not overly concerned with skill transfer or the content that is used as the vehicle for practicing the skill.

When teachers use the "stand alone" approach they report that students often have difficulty transferring and applying the learned thinking skills if no additional instruction is offered.

The "content immersion" approach favors the increased use of higher level thinking skills when students are learning new academic content. The teacher's role is to prompt students to transfer and apply thinking skills as a means of more easily acquiring this academic content.



When teachers use the "content immersion" approach they report that some students cannot apply the higher level thinking skills to sophisticated and challenging content because they have not yet learned how to use the specific skills that they are expected to use to acquire this new content.

With the "imbedded instruction" approach to direct instruction, students are exposed to real world or academic problems that require the use of multiple thinking skills. As students attempt to solve these problems they must use the numerous thinking skills that are imbedded within the problem and its solution.

When teachers used the "imbedded instruction" approach, they report that some students become confused and frustrated because they do not know how to use the various thinking skills that are required to solve the problem, or that they become confused in trying to learn too many new skills and too much new content at the same time.

We have concluded that all three approaches for direct instruction have their strengths and their weaknesses and no one of these three approaches can meet all of our expectations for an effective thinking skills program. This is why we have developed a thinking skills model. Students need to learn the names and definitions of the various thinking skills if they are to improve their metacognition and their ability to communicate their thought processes. They also need to develop or be taught a successful strategy for using a specific thinking skill if they are having difficulty using the skill with their present approach. Novice problem solvers need modeling and coaching from their teacher to improve their own abilities, and they need to learn how to transfer a learned skill to new content and new problems. They need to develop numerous thinking skills and they need to be able to autonomously transfer these skills and to discern opportunities for the application of these learned skills. They need to feel efficacious about their ability to use these skills, and they need to believe that although thinking is hard work, it is worth it in the long run.



## Literacy development in young children

is a complex phenomenon. How we behave around children and the kinds of environment we create for them nurtures their development. Discover what milestones are agreed upon by researchers and what parents, teachers, and administrators can do to funnel opportunities for success into the lives of young learners. This report includes research-based suggestions about what to look for in young children's reading and how to support their developing skills and interests.

- *Does advanced early instruction in reading during preschool years have long-term benefits?*
- *Is there a connection between precocious reading ability and verbal reasoning?*
- *Should all precocious readers automatically be placed in gifted and talented programs or in an advanced classroom setting?*

— Find the answers to these questions in —

## Reading With Young Children

by Dr. Nancy Ewald-Jackson and Dr. Cathy M. Roller

Order No. 9301 *Executive Summary* - \$2.00 \* Order No. 9302 *Full Length Paper* - \$15.00

Sorry, no purchase orders. Make checks payable to *The University of Connecticut*.  
Price includes postage/handling and state tax does not apply. All papers produced by the NRC/GT may be reproduced by purchasers. Publications distributed on a cost-recovery (non-profit) basis.  
Send orders to: Dawn Guenther - Dissemination Coordinator  
The University of Connecticut - The National Research Center on the Gifted and Talented  
362 Fairfield Rd., U-7, Storrs, CT 06269-2007

**NRC**  
**G/T**





## An Analysis of the Research on Ability Grouping

James A. Kulik

The University of Michigan  
Ann Arbor, Michigan

**E**ducational researchers formulated the basic questions about ability grouping decades ago. Does anyone benefit from grouping? Who benefits most? Is anyone harmed? How? How much? Why? But after more than a half-century of analysis and interpretation, reviewers of the research findings have still not reached agreement on the answers. For every research reviewer who has concluded that grouping is *helpful*, there is another who has concluded that it is *harmful*.

Today, however, researchers are using statistical methods to organize and interpret the research literature on grouping, and they are more hopeful than ever before of coming to a consensus on what the research says. Glass (1976) coined the term *meta-analysis* for this statistical approach to literature reviews. Researchers who carry out a meta-analysis locate studies of an issue by clearly specified procedures, code outcomes and features of the studies on quantitative scales, and use statistical techniques to relate characteristics of studies to outcomes. The approach yields reliable and precise summaries of large bodies of research.

Two major sets of meta-analyses on research findings on grouping have been completed, one set at the University of Michigan (e.g., J. Kulik & Kulik, 1991) and the other at Johns Hopkins University (Slavin, 1987, 1990). The two sets of meta-analyses together examine findings from five kinds of grouping programs:

**1. XYZ classes.** School personnel assign students by aptitude to classes (e.g., high, middle, and low classes), and the classes are instructed in separate rooms either for a full day or for a single subject. Highly similar or identical curricular materials are usually used in all classes at the same grade level.

**2. Cross-grade grouping.** Children from several grades who are at the same level of achievement in a subject are formed into groups, and the groups are then taught the

subject in separate classrooms without regard to the children's regular grade placement. Different curricular materials are thus used with same-age students who are at different aptitude levels.

**3. Within-class grouping.** A teacher forms ability groups within a single classroom and provides each group with instruction appropriate to its level of aptitude. The teacher usually uses different rates of instruction and different instructional materials for the within-class groups.

**4. Accelerated classes.** Students who are unusually high in academic aptitude receive instruction that allows them to proceed more rapidly through their schooling or to finish schooling at an earlier age than other students. The curriculum is clearly adapted to the higher aptitude level of students in these programs.

**5. Enriched classes.** Students who are unusually high in aptitude receive richer, more varied educational experiences than would be available to them in regular classes. Like accelerated programs, these enriched classes provide a curriculum that is specially tailored to students of higher aptitude levels.

Findings from the Michigan and Johns Hopkins meta-analyses agree quite well, but overall conclusions of the two research teams differ. The Michigan team found no clear effects of grouping in some programs, moderate positive benefits in others, and large positive benefits in still others. Hopkins researchers found moderate positive benefits from some grouping programs and no negative or positive effects from others. The difference in conclusions seems to stem from differences in the scope of the Michigan and Hopkins analyses. The Michigan analysts concluded that the strongest benefits from grouping were found in programs in which there was a great deal of adjustment of curriculum for highly talented learners. The Hopkins meta-analysts did not find any strong positive effects of grouping, but they also did not examine grouping programs designed for highly talented students.

A careful re-analysis of findings from all the studies included in the two sets of meta-analyses confirmed that higher aptitude students usually benefit academically from ability grouping. The academic benefits are positive but usually small when the grouping is done as a part of a broader program for students of all abilities. For example, XYZ grouping, in which little or no effort is made to adjust curriculum to the ability level of the classes, raise the test scores of higher ability students by about 0.1 standard deviations, or by about 1 month on a grade-equivalent scale. Within-class and cross-grade programs, which entail



moderate amounts of curricular adjustment, boost test scores of higher aptitude students by about 0.2 to 0.3 standard deviations, or by 2 to 3 months on a grade-equivalent scale.

Benefits are larger in special classes for higher aptitude learners. Gains on standardized tests are especially large when the programs entail acceleration of instruction. Classes in which talented children cover four grades in three years, for example, usually boost achievement levels a good deal. Test scores of children accelerated in this fashion are about one year higher on a grade-equivalent scale than they would be if the children were not accelerated. Enriched classes, in which students have a varied educational experience, raise test scores by more moderate amounts. The average gain from such classes is 4 months on the grade-equivalent scales of typical standardized tests. Although smaller than the gains from accelerated classes, gains of this size are still impressive because in many enriched classes students spend as much as half their time on cultural material (e.g., foreign languages, music, art) that is not directly tested on standard achievement tests.

The re-analysis also showed that grouping has less influence on the school work of middle and lower aptitude learners. XYZ classes, for example, have virtually no effect on the achievement of such students. Test scores of middle and lower aptitude students taught in XYZ classes are indistinguishable from test scores of similar students in mixed classes. Cross-grade and within-class programs, however, usually raise test scores of middle and lower aptitude pupils by between 0.2 and 0.3 standard deviations. The adjustment of curriculum to pupil ability in within-class and cross-grade programs may be the key.

Evidence was less clear on the noncognitive outcomes of grouping programs. One conclusion is that grouping programs usually have only small effects on student self-esteem. The programs certainly do not lead talented students to become self-satisfied and smug, nor do they cause a precipitous drop in the self-esteem of lower aptitude students. If anything, XYZ grouping may have effects in the opposite direction. XYZ programs may cause quick learners to lose a little of their self-assurance, and they may cause slower learners to gain some badly needed self-confidence. The available literature also suggests that grouping programs may have some program-specific effects in noncognitive areas. For example, a few programs of accelerated instruction clearly have an effect on the vocational plans of youngsters; other programs of acceleration have no consistent effect.

These conclusions are obviously different from the well-known conclusions reached by Oakes (1985) in her book *Keeping Track*. According to Oakes, students in the top tracks gain nothing from grouping and other students suffer clear and consistent disadvantages, including loss of academic ground, self-esteem, and ambition. Oakes also believes that tracking is unfair to students because it denies them their right to a common curriculum. She therefore calls for the *de-tracking* of American schools. De-tracked schools would provide the same curriculum for all, and they would not offer special educational opportunities to any on the basis of ability, achievement, or interests.

Oakes's conclusions, however, are based on her own selective and idiosyncratic review of older summaries of the literature and on her uncontrolled classroom observations. Objective analysis of findings from controlled studies provides little support for her speculations. Whereas Oakes believes that grouping programs are unnecessary, ineffective, and unfair, the opposite appears to be true. American education would be harmed by the wholesale elimination of programs that group learners for instruction by ability.

The harm would be relatively small from the simple elimination of XYZ programs in which high, middle, and low classes cover the same basic curriculum. If schools replaced all their XYZ classes with mixed ones, the achievement level of higher aptitude students would fall slightly, but the achievement level of other students would remain about the same. If schools eliminated grouping programs in which all groups follow curricula adjusted to their ability, the damage would be greater, and it would be felt more broadly. Bright, average, and slow students would suffer academically from elimination of such programs. The damage would be greatest, however, if schools, in the name of de-tracking, eliminated enriched and accelerated classes for their brightest learners. The achievement level of such students falls dramatically when they are required to do routine work at a routine pace. No one can be certain that there would be a way to repair the harm that would be done if schools eliminated all programs of enrichment and acceleration.

#### References

- Glass, G. V. (1976). Primary, secondary, and meta-analysis of research. *Educational Researcher*, 5, 3-8.
- Kulik, J. A., & Kulik, C.-L. C. (1991). Ability grouping and gifted students. In N. Colangelo and G. A. Davis (Eds.), *Handbook of gifted education* (pp. 178-196). Boston, MA: Allyn & Bacon.
- Oakes, J. (1985). *Keeping track: How schools structure inequality*. New Haven, CT: Yale University Press.
- Slavin, R. E. (1987). Ability grouping and student achievement in elementary schools: A best-evidence synthesis. *Review of Educational Research*, 57, 293-336.
- Slavin, R. E. (1990). Achievement effects of ability grouping in secondary schools: A best-evidence synthesis. *Review of Educational Research*, 60, 471-499.





## Identifying High Ability Preschoolers

A Review of *Identifying Gifted Preschoolers* by  
Barbara Louis, Candice Feiring, and Michael Lewis

Florence Caillard

The University of Connecticut  
Storrs, CT

As early childhood education is gaining more and more importance in the field of education, identifying young gifted children has become an important issue in the field of gifted education. In the past five years, research has increased on the subject of identification (Burns, Matthews, & Mason, 1990; Burns & Tunnard, 1991; Louis, Lewis, & Feiring, 1991; Parkinson, 1990; Robinson & Weimert, 1990; Rogers & Silverman, 1988; Shaklee & Hansford, 1992). Various identification techniques have been developed or are in the process of being developed.

*Identifying Gifted Preschoolers* is a timely videotape and teacher's manual produced by Barbara Louis, Candice Feiring, and Michael Lewis. The thirty minute training tape, which has a high technical quality, was produced to help teachers recognize gifted preschool children in a school setting. A well designed teacher's manual accompanies the tape, and it also describes a second assessment task. The videotape identifies three areas where a child can demonstrate advanced abilities: spatial abilities, verbal abilities, and problem solving abilities. It then shows average and gifted 3 and 5 year old children completing tasks requiring the use of these specific abilities. Each example is clearly presented and analyzed. Children are shown doing the tasks but never heard; the narrative is dubbed over the verbal interactions. By allowing viewers to hear part of the verbal interactions with the children, a richer context for viewers could have been established.

The videotape, if used by teachers as an identification tool, needs to be used with some caution. First, the only definition of giftedness in the tape or the manual is "Some children learn more quickly and can accomplish more difficult tasks at an earlier age than most. These children are considered to be gifted." This definition is very simplistic and the connection between the first part of the definition and the second is not as obvious as the authors

seem to believe. The developmental rates of the children could be a rational explanation of the differences. Other explanations could be early stimulation, such as previous school experience, home experiences, or self teaching from TV shows such as *Sesame Street*.

Second, even though the authors mention that children "can show their abilities in many different areas," and "may show advanced abilities in all or any one of these areas," no examples are given of other areas which are either not as well known, or harder to identify (e.g., visual, mechanical, or artistic abilities). Within each area the tasks presented to the children are isolated from everyday life and may not resemble the real abilities of the child. For example, problem solving is illustrated by presenting the child with a set of blocks of different sizes, shapes, and colors. The child then has to figure out different ways of arranging these blocks. In another task, mentioned in the manual, the adult asks the child how to arrange a birthday party for a friend. A child may not show many different strategies or know what is needed for a birthday party. Therefore, the child may not be identified as having advanced problem solving skills. The child may display problem solving skills in other domains (e.g., science or play). For example, a child may not demonstrate a superior ability in reproducing a pattern that involves looking at a picture and then translating it into a 3- dimensional object when presented with the blocks. However, the same child may be knowledgeable about an area of interest (e.g., planets, American Indians, or dinosaurs) that goes beyond the knowledge of a 3 or 5 year old. None of these tasks would have assessed that special knowledge and interest.

Finally, the tasks as illustrations of advanced abilities are similar to those used in developmental assessment. They do not seem to have been created to discover especially high abilities. They may assess the child's developmental level, but they do not show how much more the child knows or is able to do.

*Identifying Gifted Preschoolers* emphasizes important issues in early childhood education, such as:

- Children develop at different rates;
- Teachers need to recognize how children express their advanced abilities;
- Children must be inspired to reach their potential and gain a sense of accomplishment; and
- Learning tasks should challenge, motivate, and encourage interest in learning.

Although this videotape should not be used as the only tool for identifying young children with high abilities, it does



raise awareness of the different developmental rates of children. However, it falls short of being a good identification tool for advanced abilities because of its simplification of the issue, the lack of theory or research to back up all the statements, assumptions of differences between average and gifted young children, and the restricted range of tasks.

Teachers interested in identifying high ability young children should supplement their investigation with additional research. Many researchers believe that in order to better identify high ability young children, an identification system should combine more than one approach (Burns, 1990; Fatouros, 1986; Ehrlich, 1980; Felker, 1982; Hollinger, 1985; Karnes, 1986; Roedell, 1980; Smutny, 1989). Useful information can be collected from parents through the use of interviews, checklists, and anecdotal records (Hanson, 1984; Louis & Lewis, 1992; Roedell, Jackson, & Robinson, 1980; Wolfle, 1989) from teachers through observations, work samples, interest assessment (Cohen, 1989; Wolfle, 1989), and other sources, such as test scores, performance ratings, or results from the tasks previously described.

*Identifying Gifted Preschoolers* presents the viewer with a visual and written training package that is a first step in developing a broad-based screening and identification system tailored to the needs of bright young students. Persons involved in designing and developing programs for preschoolers should review this training package.

Louis, B., Feiring, C., Lewis, M., (1992). *Identifying gifted preschoolers* (teacher's manual and videotape). New Brunswick, NJ: Institute for the Study of Child Development. Cost: \$175.00

#### References

- Burns, J., Matthews, F. N., & Mason, A. (1990). Essential steps in screening and identifying preschool gifted children. *Gifted Child Quarterly*, 34(3), 102-07.
- Burns, J. M., & Tunnard, J. D. (1991). Public programming for precocious preschoolers. *Gifted Child Today*, 14(6), 56-60.
- Cohen, L. N. (1989). Understanding the interests and themes of the very young gifted child. *Gifted Child Today*, 9(45), 6-9.
- Ehrlich, V. Z. (1980). Identifying giftedness in the early years: From three through seven. In S. Kaplan (Eds.), *Educating the preschool/primary gifted and talented*. Ventura, CA: National State Leadership Training Institute on the Gifted and Talented.
- Fatouros, C. (1986). Early identification of gifted children is crucial...But how should we go about it? *Gifted Education International*, 4(1), 24-28.
- Hanson, I. (1984). A comparison between parent identification of young bright children and subsequent testing. *Roeper Review*, 7(1), 44-45.
- Louis, B., & Lewis, M. (1992). Parental beliefs about giftedness in young children and their relation to actual ability level. *Gifted Child Quarterly*, 36(1), 27-31.
- Louis, B., Lewis, M., & Feiring, C. (1991). Identification of minority inner-city gifted preschool children. Paper presented at the ACYF Research Conference, Crystal City, VA.
- Parkinson, M. L. (1990). Finding and serving gifted preschoolers. *Understanding Our Gifted*, 2(5), 1 & 10-13.
- Roedell, W. C., Jackson, N. E., & Robinson, H. B. (1980). *Gifted young children*. NY: Teachers College, Columbia University.
- Robinson, N. M., & Weimert, L. J. (1990). Selection of candidates for early admission to kindergarten and first grade. In W. T. Southern & E. D. Jones, (Eds.), *The academic acceleration of gifted children* (pp. 29-50). New York: Teachers College Press.
- Rogers, M. T., & Silverman, L. (1988). Recognizing giftedness in young children. *Understanding Our Gifted*, 1(2), 5 & 16-17 & 20.
- Shaklee, B., & Hansford, S. (1992). Identification of underserved populations: Focus on preschool and primary children. In *Challenges in gifted education*. Ohio Department of Education.
- Wolfle, J. (1989). The gifted preschooler: Developmentally different, but still three or four years old. *Young Children*, 44(3), 41-48.

# TELEVISION: GOOD or BAD?



**Research suggests that parents and educators of gifted children should consider**

**television as a potentially positive and negative force in their child's life.**

*This latest research-based paper from The National Research Center on the Gifted and Talented presents:*

- television viewing habits of high ability children
- how high ability children process television information
- the reality perceptions high ability students have about programming and advertising
- parental mediation of viewing
- separate research summaries and prescriptions for parents and teachers (full length paper only)
- 32 pages of television activities specifically designed for home and school use (full length paper only)

*To learn more about the impact television has on high ability children order:*

## Some Children Under Some Conditions: TV and the High Potential Kid

*by Dr. Robert Abelman*

**Order No. 9205 Executive Summary - \$2.00**

**Order No. 9206 Full Length Paper - \$15.00**

(includes executive summary)

Sorry, no purchase orders.

Make checks payable to *The University of Connecticut*.  
Price includes postage/handling and state tax does not apply.  
All papers produced by the NRC/GT may be reproduced by purchasers.  
Publications distributed on a cost-recovery (non-profit) basis.



Send orders to: Dawn Guenther  
Dissemination Coordinator  
The University of Connecticut  
The National Research Center on the  
Gifted and Talented  
362 Fairfield Rd., U-7  
Storrs, CT 06269-2007



## Commentary

### Preparing for Tomorrow. . . Today: Future Problem Solving

*Materials reviewed by Jann Leppien*  
The University of Connecticut  
Storrs, CT

**T**he developers of the Future Problem Solving Program (FPSP) have created a valuable product which coaches, teachers, and other individuals who are directly involved in training activities related to the Future Problem Solving Program in their schools will want to purchase. *Preparing for Tomorrow. . . Today* is a 45 minute videotape which follows two teams of students through the entire FPS process in detail.

The tape begins with an overview of the program by Dr. James Alvino, the Executive Director of the FPSP. Explanations of each of the 6 steps of the FPS process precede footage of the students working toward their best solutions. Teachers' comments provide tips, insights, and instruction garnered from years of experience as award-winning coaches. The viewer is encouraged to stop the video and practice each of the steps in a similar fashion to what was observed on the tape. This practice serves as a first-hand experience for the participants to become acquainted with the process, learn how to manage and facilitate a problem-solving team, and fine tune their skills to assist students as they progress through the program.

Many readers are aware that the Future Problem Solving Program is an international educational program designed in 1974 by the creativity pioneer Dr. E. P. Torrance and his wife Pansy. Combining the creative problem solving process developed by Osborn and Parnes and some potential problems of the future, Torrance launched what has become one of America's largest educational programs. Today an estimated 200,000 students in all fifty states and numerous foreign countries are using the program's materials.

The FPSP is a year-long program in which teams of four students use a six-step process to solve complex scientific

and social problems of the future. During the year, teams work on three problems. At regular intervals throughout the year, the teams mail their work to evaluators, who review the students' response booklets and return them with suggestions for improvement. From the feedback that the team's receive and with additional coaching, the students become increasingly more proficient at problem solving. Of the three problems the students complete, the first two are practice problems, and the third problem is competitive and serves as the qualifying problem used to invite schools to state or regional FPS bowls. Winning teams in each of the three grade level divisions, 4-6, 7-9, and 10-12 at the state FPS Bowls are invited to attend the International Future Problem Solving Conference.

This video is an indispensable training tool for the experienced coach and newcomer alike. The training video can be purchased with additional materials, including a coaches guide to the Future Problem Solving Program; an International FPSP Conference Champions book, showcasing the three 1989 winning teams solutions and evaluations; a program brochure; and a set of handouts and transparencies to accompany the training tape. The transparencies focus on the rules of brainstorming, specific training tips for each step of the FPS process, and a list of categories teachers can use with students to increase their flexibility in generating a variety of possible problems. The video is VHS formatted and can be purchased with or without the supplemental materials. Several price ranges exist, however, the most attractive is the materials package which includes this comprehensive 45 minute training video and a 15 minute videotape summarizing the FPS program and process for \$99.95. Both tapes are available without the supplemental materials for \$69.95.

The Future Problem Solving Program challenges students in applying information they have learned to some of the most complex issues facing society. They are asked to think, to make decisions, and, in some instances, to carry out their solutions. Now educators can purchase a set of comprehensive materials that can provide the technical assistance to those who shoulder the responsibility for helping their students become the solvers of tomorrow's problems. . . today.

To receive information about this program, and other FPSP support materials contact: Future Problem Solving Program, 315 West Huron, Suite 140-B, Ann Arbor, Michigan, 48103-4203, (313) 998-7663.



# Research in Progress

## Metamemory as a Characteristic in Describing Economically Disadvantaged Gifted Children

*Mary M. Frasier*  
The University of Georgia  
Athens, GA

In its attempt to develop as complete a picture as possible of gifted students from economically disadvantaged backgrounds, The University of Georgia has encouraged related research studies. One such study, designed to discover what economically disadvantaged gifted children know about memory and memory processes, is being conducted by Karne Lambie, through The Department of Educational Psychology at the University of Georgia. Knowledge about memory is termed "metamemory." Metamemory processes are important because they reflect the executive functions of the memory system that are used to regulate and control many aspects of intelligent behavior.

Two groups of students will be involved in this study. One group will consist of 40 economically disadvantaged children in grades 1, 2, 4, and 5 who have been identified for gifted program services using the Research-Based Assessment Plan being tested at The University of Georgia. The other group will consist of 40 students in grades 1, 2, 4, and 5 who have been identified for gifted program services according to the standard criteria used in Georgia. This criteria requires at least a 130 IQ determined by aptitude and/or achievement test performance. A metamemory interview instrument developed in 1975 by Kreutzer, Leonard, and Flavell will be used to collect data from the sample population. Contact The University of Georgia for further information.

## Underachievement Among High Ability Puerto Rican High School Students: Perceptions of Their Life Experiences

*Eva I. Díaz*  
Pennsylvania State University  
State College, PA

Puerto Rican students are often described as underachievers. Although several studies have been conducted in the area of underachievement, there has not been any research focusing on high ability and/or gifted Puerto Rican students who are underachieving in school. This study will examine the self-environment. It will investigate the views that Puerto Rican high ability underachievers hold of their life experiences as related to family/culture, school/classroom, community/society, and personality and how these experiences contribute to their actual academic status. A naturalistic, qualitative, and phenomenological approach, including participant observation fieldwork, ethnographic interviewing, document review, and case studies will be the main strategies used to gather data. Finally, patterns of interactions among factors underlying the students' underachievement will be assessed.

## National Achievement Assessment of High Ability Students

*Del Siegle and Sally M. Reis*  
The University of Connecticut  
Storrs, CT

Very little current research is available on the number of students in schools who are not achieving to their potential. Estimates have varied from a very high percentage to a very low percentage. The researchers are conducting a national survey of 12,000 fourth, fifth, and sixth grade students who have been identified as gifted and talented to assess student and teacher perceptions of academic performance. The responses will be analyzed for achievement patterns by grade, subject area, and gender. Seventy-two Collaborative School Districts from the NRC/GT are involved in the study.





# Recent Research

## A Study of the Status of Local Programs for Students With High Abilities in Twenty States and the Factors That Lead to Their Retention and Elimination

*Jeanne Harris Purcell, Ph.D.*  
The University of Connecticut  
Storrs, CT

**T**he National Research Center on the Gifted and Talented sponsored a study to examine the status of local programs for students with high abilities and the reasons to which educators and key personnel attributed the status of these programs. The study was completed in a purposive sample of 20 states, divided into four groups according to economic health (i.e., good, poor) and the existence or nonexistence of a state mandate to provide program services. This descriptive ex post facto research was completed in two phases. Phase I, a mail survey to more than 3,200 local personnel that yielded a response rate of over 54%, was designed to assess the status of programs for students with high abilities and the reasons attributed by local personnel to the status of their programs. Phase II, interviews with key personnel (the state director of gifted education, the president of the state advocacy organization, a school superintendent, a chairperson of a local board of education), was designed to triangulate the findings from Phase I.

Results from Phase I indicated that programs in states with mandates and in good economic health are "intact" and "expanded," while programs in all other groups are being "threatened," "reduced," and "eliminated" in high numbers. The majority of respondents (68%) from states with mandates to provide services to students with high abilities and who reported programs as intact or expanded attributed the status to the existence of a state mandate and advocacy efforts. Almost half of the respondents from states without

mandates and reporting their status as reduced, threatened, or eliminated attributed this status to a decline in state and local funds. The majority of these respondents did not believe programs for high ability students were being threatened, reduced, or eliminated because of policy decisions related to reform issues or on the grounds of racial bias. Additionally, respondents indicated that approximately 75% of students with high abilities in grades three to eight receive program services, that 50% of students in grades one to two and nine to twelve receive similar services, and that program services for students Pre-K to K were almost nonexistent. Results from key personnel in Phase II of the research triangulated the findings from Phase I. Advocacy efforts were most frequently associated by key personnel with programs that were intact or expanding, and reductions in funding were associated with programs experiencing jeopardy.

• • •

## The Effects of Methodological Science Process Skills Training in Environmental Science on Intermediate Student Creative Productivity

*Scott Edward Johnson*  
The University of Hartford  
West Hartford, CT

**N**umerous professionals in science and gifted education suggest that elementary teachers should offer interest-based experiences, teach methodological skills, and provide students with the opportunity to engage in research, as promising methods to nurture scientific talent. This study compared the effect of three instructional methods in environmental science (Type I exploratory activities, Type II methodological training, and combined Type I/Type II activities) and the influence of grade level, gender, achievement scores, attitude toward science, and self-efficacy for creative productivity on the initiation of scientific investigations. In addition, these variables and assignment to treatment group were investigated for their effect on post-treatment attitudes toward science and post-treatment self-efficacy for creative productivity.

A quasi-experimental, nonequivalent control group pretest-posttest design was used to examine the effects of the variables during the ten weeks of the study, and grade level and pre-treatment self-efficacy for creative productivity



scores were covaried for all analyses. The subjects were 342 above-average 4th, 5th, and 6th grade students in 11 states.

The discriminant function equation used to investigate the effects of variables upon investigation initiation was significant (chi square= 31.53, 5 df,  $p < .00001$ ), with five variables accounting for 9 percent of the variance.

Participation in the Type I group was the most powerful predictor of student decisions to initiate investigations.

The stepwise multiple regression used to investigate self-efficacy accounted for 7 percent of the variance, beyond the 37 percent accounted for by the covariates. Participation in the Type II group was the most powerful predictor of posttest self-efficacy.

The stepwise multiple regression used to investigate science attitude accounted for 21 percent of the variance, beyond the 10 percent accounted for by the covariates of grade, pre-treatment self-efficacy, and pre-treatment attitude. Participation in the Type I group and the Type I/Type II group were the most powerful predictors of posttest attitude toward science.

• • •

## Study to Address Family Factors That Support or Hinder Achievement

*Lisa King*

The University of Georgia  
Athens, GA

One objective of the project being conducted at The University of Georgia site of The National Research Center on the Gifted and Talented is to investigate factors that impact the identification of gifted students from economically disadvantaged families and areas. One of those factors is the role played by families. A *Family Matters Survey* had been developed to examine factors within the familial contextual process that enables gifted disadvantaged children to achieve. Factors to be investigated include: parental beliefs and attitudes regarding education, parental expectations and aspirations for the child, supportive interactions that occur between the parent and the child, and support structures operating within the family setting. Families of students identified through The University of Georgia's Research-Based Assessment Plan will be interviewed on the *Families Matters Survey*. Contact The University of Georgia for further information.

## A Study of Effective Classroom Practices With Gifted Students in Rural Settings

*Thomas Stephan Hays*

University of Hawaii  
Honolulu, HI

Recent studies conducted by The National Research Center on the Gifted and Talented (NRC/GT), found that little curriculum modification is being provided for gifted students in the regular classroom and that between 40-50% of the content can be eliminated for these students. Other research findings indicate that gifted and talented children spend most of their school day in a regular classroom with teachers who have insufficient training and experience to meet their needs. Experts in the field of gifted education have described and advocated instructional and curricular modifications for gifted students in the regular classroom. The methods for differentiating instructional and curricular practices for gifted students in the regular classroom include but are not limited to ability grouping; self-selected independent study; acceleration; higher order, cognitive processing; and questioning strategies.

This research was an ethnographic study of three rural schools identified by experts as effective in meeting the needs of gifted students in the regular classroom by classroom teacher use of curriculum modification and differentiation techniques. Naturalistic observation, in-depth interviewing, and document review were the major information gathering techniques used in this study. Field notes, recorded during observations, interviews and after analyzing documents, were coded and analyzed for patterns themes, and topics using inductive and logical analysis.

Curriculum modification techniques and instructional strategies used by classroom teachers in the three sites were reported. The effect of a gifted education specialist on classroom instruction, curriculum materials, and training strategies was analyzed. The instructional strategies and curricular modifications used most often by classroom teachers were: curriculum compacting, various enrichment activities, and higher order thinking skills. Factors that emerged from the study regarding effective classroom practices with gifted students in rural settings included: collaboration, administrative support, school philosophy, teacher training, good coordination of the program, and community support.



# S Newsletter taff

*Editors:*

E. Jean Gubbins  
Del Siegle

*Editorial Board:*

Joseph S. Renzulli  
Nancy Lashaway-Bokina  
Dawn Guenther

The NRC/GT Newsletter is published by The National Research Center on the Gifted and Talented, The University of Connecticut. The Research Center is funded by the Office of Educational Research and Improvement, U.S. Department of Education. The opinions expressed in this publication do not necessarily reflect the position, policy, or endorsement of the Office or Department.

**OERI Project Liaisons:**

Margaret Chávez  
Ivor Pritchard  
Patricia O'Connell Ross

Please send change of address notification to NRC/GT Mailing List, The University of Connecticut, 362 Fairfield Road, U-7, Storrs, CT 06269-2007. Please include the address label from this issue. Phone (203-486-4826) FAX (203-486-2900)

The University of Connecticut  
The National Research Center on the Gifted and Talented  
362 Fairfield Road, U-7  
Storrs, CT 06269-2007

Non-Profit Org.  
U.S. Postage  
PAID  
The University of Connecticut