NRC G/T

The National Research Center on the Gifted and Talented

Newsletter

Winter 1993

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

NRC/GT 50/500/5000

E. Jean Gubbins
The University of Connecticut
Storrs, CT

The third year of operation of The National Research Center on the Gifted and Talented is half over, and we are looking at some of our accomplishments. We established a national advisory system to determine the research directions and a network of Collaborative School Districts for our quantitative and qualitative research studies. We wanted the process of research design and implementation to include representation from every state and territory. Well, we finally hit the mark of **50** states as of December 1992 with the addition of Delaware. We also added one territory: Virgin Islands. We would like to welcome new districts. Now we are looking for contact persons in three remaining territories: Puerto Rico, American Samoa, and Trust Territory. Do you know anyone?

The mark of **500** was reached in January in response to the NRC/GT invitational conference in Charlottesville, Virginia. The Research and Classroom Practices in Gifted and Talented Education Conference was oversubscribed beyond our expectations when 500 people pre-registered. We planned a local conference for 100 people, as part of our annual meeting with the National Research Center Advisory Council, and stretched all accommodations to the limit by admitting 280 people. The conference featured 13 research studies and several of these same studies are highlighted in this edition of the *NRC/GT Newsletter* under Year 2 Updates. We are thrilled with the response for requests for information about the Center's research. More publications are being released each month. We will keep you apprised of their availability. Take a look at the Winter, 1993 edition of the *Journal for the Education of the Gifted.* The entire volume features several research studies that you have helped us to implement.

(continued on page 2)

New districts involved with the NRC/GT

Boulder Valley Public School District
Boulder, CO

Hartford Public Schools
Hartford, CT

Red Clay Consolidated School District
Wilmington, DE

Miami Country Day School
Miami, FL

North Kentucky Christian School
Florence, KY

Brockton Public Schools
Brockton, MA

Bronson Community Schools
Bronson, MI

Coldwater Community Schools
Coldwater, MI

Las Cruces Public Schools
Las Cruces, NM

Tigard/Tualatin School District
Tigard, OR

Round Rock I.S.D.
Round Rock, TX

St. Thomas/St. John School District
Charlotte Amalie, Virgin Islands

Inside

Our mailing list has grown to over **5000** people. The dissemination process is critical to getting the research results into the hands of practitioners in a timely manner. You can be an integral part of the process. Share the NRC/GT materials with colleagues, parents, and friends. Our materials are not copyrighted; feel free to reproduce all documents - just cite the NRC/GT as the source. **50/500/5000** can become **50000** contacts with your help.

Print media and conferences are not our only communication techniques. Last year's satellite video presentation on Curriculum Compacting by Dr. Sally M. Reis, Peg Beecher, and Del Siegle was very effective. We are still receiving requests for copies of the videotape and guidebooks. We are currently finalizing plans for another satellite presentation, focusing on thinking skills. For a soon to be available informational packet, please write to our Dissemination Coordinator, Dawn R. Guenther.

We are currently developing our resubmission proposal for Year 4 of The National Research Center on the Gifted and Talented. We are expanding initial plans which have worked so well, and we are incorporating new ideas based on feedback from so many of you in our network. Our Collaborative School Districts, National Research Center Advisory Council, and Consultant Bank Members make our research center a model operation. The network continues to grow, and we would like to welcome new members of our Consultant Bank.

50/500/5000 to plans for Year **5** of The National Research Center on the Gifted and Talented (1994-95) — we continue to focus on past accomplishments, present research, and future activities. The evolving research findings will continue to have an impact on the educational opportunities for students and professional development experiences for practitioners.

New Consultant Bank Members

James Alvino
Future Problem Solving Program
Ann Arbor, MI

Donna Rae Clausen
University of Wisconsin
Whitewater, WI

C. June Maker
University of Arizona
Tuscon, AZ

Roy P. Martin
University of Georgia
Athens, GA

Gina Ginsberg Riggs
Gifted Child Society
Oakland, NJ

Linda Jensen Sheffield
Northern Kentucky University
Highland Heights, KY

Dean Keith Simonton
University of California
Davis, CA

Joyce VanTassel-Baska
College of William and Mary
Williamsburg, VA

Lisa Wright
Columbia University
New York, NY

motivation and the gifted

Pamela R. Clinkenbeard
Yale University
New Haven, CT

The following publications are some that I consider to be particular gems in the area of motivation and the gifted. Each is an excellent resource for educators and counselors interested in exploring issues of motivation and the gifted, especially the distinctions between intrinsic and extrinsic motivation and their educational applications. Some of these resources may have been overlooked because their titles do not mention motivation, or because they are written by authors who are not active in the field of gifted education. I have not included well known and widely available publications such as Sylvia Rimm's *Underachievement Syndrome* and Miriam Adderholdt-Elliott's *Perfectionism*, which also address these issues.

Amabile, T. M. (1989). *Growing up creative: Nurturing a lifetime of creativity.* New York: Crown Publishers.

The title of Amabile's book does not give an indication of the importance she places on motivation. The central thesis of her research on creativity, upon which this book is based, is that intrinsic motivation is a necessary condition for high levels of creative production, and that extrinsic motivation damages creativity. She refers to the four "creativity-killers:" evaluation, reward, competition, and restricted choice. *Growing Up Creative* is a readable, practical handbook for parents and teachers. It is full of anecdotes about individual children, and information from interviews with creative adults. There are a number of suggestions and activities designed to foster creativity in children while maintaining their intrinsic motivation to explore and create. Amabile writes equally well for a general audience as she does for a scholarly audience; though this book is based on her psychologically sophisticated research, she presents the results of that research through anecdote and example, rather than charts and statistics. (The endnotes contain references to many of her academic publications.) Some of the chapter titles are "Vision and Passion," "The Motivation for Creativity," "How to Destroy a Child's Creativity," and "Keeping Creativity Alive at School: Suggestions for Teachers." In the preface to this book, Amabile states: "The most crucial factor in creativity is the *motivation* to do something creative. Talent, personality, and skill tell us what a child *can* do; motivation tells us what that child *will* do."

Bell, L. A. (1989). Something's wrong here and it's not me: Challenging the dilemmas that block girls' success. *Journal for the Education of the Gifted, 12*, 118-130.

This ethnographic article presents several more dilemmas that seem to block bright girls from engaging fully and successfully in school. The strength and near unanimity of girls' feelings is particularly striking. As part of a project to study internal barriers to girls' achievement, this study shows how educators and parents can help girls externalize and challenge the limits to their success. Bell and her colleagues met weekly for 14 weeks with a group of high potential urban elementary school students (grades three through six). The ethnic and economic breakdown of the 26 girls matched that of the school: 15% Hispanic, 28% Black, 57% White, and 39% eligible for free or reduced lunch. To start the discussions, the researchers introduced issues defined in the literature as problematic for females. The dilemmas, as expressed by the girls and labeled by the researchers, included "smart vs. social;" "silence vs. bragging;" "failure vs. perfection;" "media 'beauty' vs. marginality;" "passive vs. aggressive;" and, underlying the other dilemmas, "conforming vs. being punished." The discussion groups served first as a way of showing girls that others face the same dilemmas, and second as a catalyst for creating new ways out of the dilemmas. For instance, the discussion of "passive vs. aggressive" resulted in the girls developing effective strategies for participating in classes when they feel the boys in the class are dominating the discussion and the teacher's attention. Bell presents several other creative solutions, developed by the girls themselves, which illustrate her conclusion: Instead of "What's wrong with me," girls can learn to say, "What's wrong out there, and what can we do to change it for the better?"

Helmreich, R. L., Beane, W., Lucker, G. W., & Spence, J. T. (1978). Achievement motivation and scientific attainment. *Personality and Social Psychology Bulletin, 4*, 222-226.

This article describes the first in a line of studies by Helmreich, his colleague Janet Spence, and others. These studies look at achievement motivation as a multidimensional phenomenon, comprised of intellectual mastery, orientation toward work, and competitiveness. The researchers measure eminent scientists, scholars, and others using a motivation measure called the Work and Family Orientation Scale. This study reports on data from scientists. Helmreich and his colleagues found that the scientists whose work was cited most by their colleagues scored high on work and mastery orientations, and relatively low on competitiveness. The next most cited group of scientists scored low on work and mastery orientations, but high in competitiveness. They report that these results were generally replicated with two other groups using very different criteria: undergraduates and their grades, and graduates of a business school and their income. That is, the most successful in each group scored high on work and mastery and low on competitiveness. The authors speculate that high competitiveness may be characteristic of scientists who jump from one "hot" topic to the next, but that competitiveness probably results in some fear of failure in those scientists who are also motivated by work and mastery orientations.

Middleton, J. A., Littlefield, J., & Lehrer, R. (1992). Gifted students' conceptions of academic fun: An examination of a critical construct for gifted education. *Gifted Child Quarterly, 36*, 38-44.

This article explores the radical notion that "fun" is not only acceptable in academics, it is a critical component of high quality academic activity. The premise here is that intrinsic motivation is important to education, and implicit in this kind of motivation is that students consider the activity to be fun. The authors present a model of academic fun and indicate how it was tested with students in grades three through seven. The three components that seem to comprise academic fun for gifted students include *interests* (they find the activity intrinsically interesting or find it a chance for self-expression), *arousal* (they find the activity exciting or novel), and *control* (they perceive that they have choices within the activity and that it is challenging but not too difficult). The authors offer suggestions for structuring classroom activities to promote academic fun, but caution against employing academically peripheral "fun and games" as a way of promoting interest.

Whitmore, J. R. (1986). Understanding a lack of motivation to excel. *Gifted Child Quarterly, 30*, 66-69.

This thoughtful article, by an author well known for her work on gifted underachievers, discusses motivation and these students. She cautions against the easy dismissal of gifted underachievers as "unmotivated" and asserts that the cause of underachievement in gifted students is usually a mismatch between the child's motivational characteristics and the opportunities provided in the classroom. She urges a systematic investigation into the nature of the individual student's problem, and an analysis of the classroom placement of the student. Her arguments are based on the premise that all students, and especially the gifted, want to master new knowledge and skills and to excel in school, but that various environmental factors and learning contexts can block that motivation to learn. She points out that punishment and pressure tactics are generally ineffective in the long term, and create further negative attitudes toward school and possibly emotional problems.

Year 2 Updates

Robert J. Sternberg and
Pamela R. Clinkenbeard
Yale University
New Haven, CT

There are two main research projects underway at the Yale University site of The National Research Center on the Gifted and Talented (NRC/GT). The first, led by Robert J. Sternberg, is a five year project designed to study identification, teaching, and evaluation of gifted students in one integrated investigation. The second project, led by Pamela R. Clinkenbeard, is a four year qualitative investigation of motivation in gifted middle school students. For each project, we will describe briefly our progress up through the second year of the grant, which ended May 31, 1992.

A Theory-Based Approach to Identification, Teaching, and Evaluation of the Gifted

This project is based on Sternberg's triarchic theory, which postulates three aspects of intellectual ability: analytic, synthetic-creative, and practical-contextual. A common problem in the education of gifted students is inconsistency between the way these students are identified, and the instruction and assessment they receive. For example, a student may be identified for a gifted program on the strength of high creativity test scores, but the program may consist of accelerated work in a traditional subject matter area. The creatively gifted student may or may not be gifted in the content of the program.

Analytic ability is seen in those students who are most likely to be identified for gifted programs: generally, those who score high on IQ tests and who do very well in schoolwork. Synthetic-creative ability is characteristic of students who show insight in solving novel problems and who generally think in non-entrenched ways, but who are probably less "school smart" than analytically gifted students. Practical-contextual ability is seen in students who are outstanding at coping with problems of everyday life, and who are skilled at adapting themselves to the environment; we might call them "street-smart."

Our main activities in the first two years were building and revising the curriculum for the program, developing and testing an experimental version of the Sternberg Triarchic Abilities Test (STAT), and making plans for the summer programs that will be the major source of project data. We identified 63 high school students who were high in analytic, creative, or practical intelligence. This identification was part of the final arrangements for our 1992 summer pilot program, called the Yale Summer Psychology Program (YSPP). In this program, different sections of an introductory course in psychology were taught to emphasize analytic, creative, or practical skills. Students were randomly assigned to the different course sections, and all were evaluated on analytic, creative, and practical tasks. In summary, this project systematically manipulates identification, instruction, and evaluation of gifted students to determine what would be gained by broadening identification procedures, teaching in ways that are or are not tailored to gifted students' particular patterns of abilities, and assessing the students' performance in ways that either do or do not address their particular strengths. Our main activity in Year 3 is to analyze the results of data on various tests and course assignments from YSPP, and to plan the 1993 summer program.

Motivation and Underachievement in Urban and Suburban Gifted Adolescents

The motivation project, led by Pamela R. Clinkenbeard, is a four year qualitative investigation that began in Year 2. The purpose of the study is to investigate factors that create or inhibit a "gifted" level of performance, both in those who have been identified as gifted and in those who have not. This project will address two important factors in the gap between potential and performance: motivation and disadvantage. We will describe in qualitative fashion the motivational patterns found in both suburban and economically disadvantaged urban classrooms of gifted preadolescents; we will extend this observation to regular classrooms in an attempt to determine the motivators of exceptional performance in those not identified as gifted. Motivation has emerged as an important factor in defining and explaining giftedness.

The primary activities of this project in the 1991-92 funding year were to build a literature database on motivation and the gifted, develop a literature review, conduct pilot classroom observations in a low income urban middle school gifted classroom, and refine the method of qualitative observation. The main thing that has been learned in the course of building the database and writing the literature review is that there is little actual data-based research focusing on motivation and the gifted. Electronic searches of psychology and education databases using the search term "motivation and gifted" yielded a number of articles, but most of them have turned out to be descriptions of activities or programs presumed to be motivational for gifted students. Another subgroup of these articles addresses current research on motivation and its implications for gifted education, but does not present any new data.

From the pilot observations, we refined the qualitative observational techniques to be used in the next year of the project, and affirmed that very high level products can be developed in very poor urban schools.

The main activity in Year 3 will be to observe two gifted classes, one suburban and one urban and economically disadvantaged. Expected knowledge includes some answers to these questions: Do suburban classrooms for gifted preadolescents reveal different motivational patterns from those in economically disadvantaged urban classrooms? Are motivational patterns of students identified as gifted different in kind and/or degree from motivational patterns of other students? Does the experience of being labelled "gifted" cause a shift in motivation related behavior?

Yale
SUMMER
Psychology Program

An introductory psychology course for high ability students currently in grades 10 and 11

June 27 – July 24, 1993

- Four week residential program on the Yale campus
- Challenging curriculum designed by Robert J. Sternberg, Yale University's IBM Professor of Psychology and Education
- Lectures delivered by Yale psychology professors
- Discussion sections, small group work, independent projects
- Prepares students to take AP examination in psychology (optional)
- Full schedule of planned recreational and social events
- Secure housing and full-time adult supervision
- Financial aid available for economically disadvantaged students

NRC G/T

For more information and an application form, write to:
Melanie G. Grimes, Coordinator, Yale Summer Psychology Program, Department of Psychology, Box 11A Yale Station, New Haven, CT 06520-7447 (phone 203-432-4657).

More Year 2 updates

An Investigation of Student Learning Outcomes: Results of a Program Satisfaction Survey

Marcia A. B. Delcourt and Jay A. McIntire
The University of Virginia
Charlottesville, VA

What are the characteristics of effective school programs for high ability students? Investigations of cognitive and affective outcomes for gifted students have been reported in the literature (Cornell, Delcourt, Goldberg, & Bland, 1992; Feldhusen & Sayler, 1990; Goldring, 1990; Vaughn, Feldhusen, & Asher, 1991), however, these studies have not focused on the perceptions of school personnel, parents, and students across several types of programs.

We had available a national sample of third, fourth, and fifth grade students from four program arrangements: special schools, separate class programs, pull-out programs, and within class programs. Each type of program was represented by three or four school districts. All students had been in their respective programs for one year. The focus of the survey was to understand what impact members of the school community felt the program had on its clientele.

METHODOLOGY

Parallel forms of the survey were developed for students, parents, teachers of the gifted, program coordinators, and school principals. Survey questions for parents, teachers, and administrators addressed the areas of achievement, challenge, social development, self-concept, curriculum, communication about the program, and general attitudes concerning the program. Respondents were instructed to complete the survey about their particular program. Survey questions were worded to reflect the roles of the respondents. For example, parents were asked to assess the program's impact upon their own child, while teachers and administrators were asked to assess the impact of the program for both gifted and non-gifted students. Each of these survey versions consisted of seven to nine multiple choice items with four possible responses (i.e., very important, somewhat important, of little importance, not important) and one or two open-ended questions. The student version included four items about course content, challenge, enjoyment, and social relationships. Students responded to the questions by circling one of three choices: most of the time, sometimes, never.

The student sample was selected to include individuals who were identified as disadvantaged (receiving free or reduced price school lunch) and who represented diverse racial/ethnic groups. From a sample of 300 students, 43 were categorized as disadvantaged and 91 were non-Caucasian. The sample was selected from 57 schools across the four program types. All students and their parents were surveyed anonymously about the particular program operating in their school, as were the teachers of the gifted for each student, the program coordinator, and the school principal.

ANALYSIS

Parallel items across all four survey versions were analyzed; therefore, only items relating to course content, challenge, enjoyment, and social relationships are included in this report. Survey results were analyzed using a Chi-square procedure. These calculations were based on a comparison between the expected number of responses for each survey question and the actual responses across each program type. The .05 level of significance was employed interpreting these results.

STUDENT SURVEY RESULTS

1. When compared to responses from students in pull-out programs, separate classes, or special schools, students from within class programs reported less frequently that their programs presented them with new content or challenging work.
2. Students in special school programs reported significantly greater enjoyment of their relationships with peers in the gifted program than did students in separate class or within class programs.
3. Students in pull-out programs reported significantly greater enjoyment of their relationships with peers in the gifted program than did students in within class programs.

TEACHER/ADMINISTRATOR SURVEY RESULTS

Since no significant differences were found between teachers and administrators on any variable, these groups were combined.

1. Teachers and administrators in special schools and in schools with separate classes reported greater increases in student attitudes toward school, greater student achievement increases due to program participation, and greater increases in student self-confidence than did teachers and administrators in schools using pull-out or within class models.
2. Teachers and administrators among the four program types did not differ significantly in their perceptions of the level of challenge offered by their school's gifted program, nor did they differ in their perceptions of viewing their gifted program as an appropriate model for their students.

PARENT SURVEY RESULTS

1. Parents of children in separate class programs reported greater increases in student attitudes toward school than did parents of students in pull-out or within class model programs.
2. Parents of children in special schools, separate classes, and pull-out programs viewed the program as offering more challenging work than did the parents of children from within class programs.
3. Parents of children in separate class programs attributed greater achievement increases to participation in the gifted program than did parents with children from within class programs.
4. Parents of children in separate class programs reported greater gains in self-confidence due to participation in gifted programming than did parents with children in within class programs.
5. Parents of students who participated in homogeneously grouped instruction for the gifted at least part of the time (separate school, separate class, and pull-out programs) attributed greater achievement increases to participation in the gifted program and reported higher levels of self-confidence in their children than did parents of children who were in full time heterogeneously grouped classes (within class programs).
6. Parents with children attending within class programs were less likely to see these programs as beneficial as compared to parents with children in each of the other program types.

CONCLUSIONS

For this sample, parents, students, teachers, and administrators from the within class model for high ability students seemed less satisfied with the program than did individuals from districts employing other models. Since this survey focused on perceptions, these results are a product not only of what happens in the program, but the information individuals receive about it. As a follow-up investigation of parent attitudes, we examined their comments regarding the question, "Do you think this program has been beneficial for your child?" Parents of students in the heterogeneously grouped model were the most likely to respond that they did not know enough about their child's overall program. Teachers and administrators employing this design should be certain that their school personnel and parents are fully informed about how the curriculum is differentiated for the students and how the program operates. Content and design for all types of programming arrangements should be evaluated on a regular basis to ensure an appropriate fit with the students' needs. For additional information about classroom practices for high ability students and differentiating the curriculum for the gifted, refer to research by Westberg, Archambault, Dobyns, and Salvin (in press) and Reis and Purcell (in press), respectively. A review of evaluation techniques in gifted education can be found in an article by Tomlinson, Bland, and Moon (in press).

Each of the four programs in this study employed a different student grouping arrangement (special school, separate class, pull-out program, within class program). The models selected by each community were based on their philosophy and needs. While one type of program may be more beneficial for a particular child than another type, the way that the program is implemented determines its satisfaction rating, no matter the type of program.

REFERENCES

Cornell, D. G., Delcourt, M. A. B., Goldberg, M. D., & Bland, L. C. (1992). Characteristics of elementary students entering gifted programs: The learning outcomes project at the University of Virginia. *Journal for the Education of the Gifted, 15*, 309-331.

Feldhusen, J. F., & Sayler, M. F. (1990). Special classes for academically gifted youth. *Roeper Review, 12*, 244-249.

Goldring, E. B. (1990). Assessing the status of information on classroom organizational frameworks for gifted students. *Journal of Educational Research, 83*, 313-326.

Reis, S. M., & Purcell, J. H. (in press). An analysis of content elimination and strategies used by elementary classroom teachers in the curriculum compacting process. *Journal for the Education of the Gifted.*

Tomlinson, C., Bland, L. C., & Moon, T. (in press). Evaluation utilization: A review of the literature with implications for gifted education. *Journal for the Education of the Gifted.*

Vaughn, V. L., Feldhusen, J. F., & Asher, J. W. (1991). Meta-analyses and review of research on pull-out programs in gifted education. *Gifted Child Quarterly, 35*, 92-98.

Westberg, K. L., Archambault, F. X., Dobyns, S. M., & Salvin, T. J. (in press). The Classroom practices observation study. *Journal for the Education of the Gifted.*

More Year 2 updates

Developments in Identification and Evaluation: Databases, New Instrument Development, and Promising Practices

Carolyn Callahan, Sara Moore, Cheryll Adams, and Paula Pizzat
The University of Virginia
Charlottesville, VA

The University of Virginia site continues to examine identification and evaluation practices in gifted programs. This project, which is now entering its third and final year, has several components which are useful to practitioners. Best practices in identification and evaluation have been compiled to provide models on which new or revised programs can be based. Reliability and validity studies on promising local instruments are underway to broaden the range of assessments available, and a series of databases is being set up to allow easy access to current literature and practices in identification and evaluation.

Sixteen databases, each focusing on a different aspect of identification or program evaluation, have been established. The databases include annotated bibliographies about specific issues in gifted student identification (such as identifying LD/gifted students), about the use of standardized tests in identifying gifted students, and about aspects of program evaluation. Other databases include abstracts of published reviews of standardized tests used in identification and program evaluation, reviews based on the Scale for the Evaluation of Gifted Identification Instruments (SEGII) and the Scale for the Evaluation of Program Evaluation Instruments (SEPEI), NRC/GT developed scales, and copies of locally developed identification and evaluation instruments. The identification databases are currently accessible to the public. The evaluation databases will be available this spring. The NRC/GT is in the process of obtaining permission from local school divisions to release their locally developed identification and evaluation instruments, and these will be available as soon as permissions are granted.

During the second year of the project, attention focused on reviewing identification instruments. The files were read to ensure that we had as complete a list as possible of standardized tests in use for identification and that we had an accurate assessment of the locally developed instruments we hold. Instruments which are published and/or standardized were reviewed using the Scale for the Evaluation of Gifted Identification Instruments (SEGII) which assesses the reliability, validity, and utility of tests. Each test was reviewed separately for each gifted construct for which it was used. Unpublished instruments were reviewed on a more basic form which looked at the utility aspects of the instruments (e.g., age group and respondent) and asked only general questions about reliability and validity.

Another facet of this project is the identification of locally developed instruments for further study. One instrument showing promise in the identification of students gifted in science is the Diet Cola Science Abilities Test. It is not a multiple-choice test nor is it specific to a particular curriculum. It is open-ended, process-oriented, and requires students to apply their knowledge. Because it deals with experimental design, students must also show their ability to "do science." As they complete their design, students have the opportunity to demonstrate their competency in all of the basic and integrated process skills. Reliability was assessed initially since the consistency of the test scores needed to be established before any validity studies could be undertaken. Interrater reliability, intrarater reliability, equivalent forms reliability, and test-retest reliability were considered in the data collection for 1991-1992. Test sites were chosen from the list of Collaborative School Districts (CSDs) that expressed interest in participating in The National Research Center on the Gifted and Talented's reliability and validity studies in identification instruments. The results of the study show that the test is not gender or culturally biased. Because the reliability coefficients were sufficiently high, validity studies are currently underway.

We are also beginning reliability studies on two other locally developed instruments. One is a peer referral instrument that is used to identify Hispanic students. The other is being used to identify talent in young children. Results from both of these studies should be available this spring.

A recent publication of the NRC/GT at the University of Virginia is the monograph, *Contexts for Promise: Noteworthy Practices and Innovations in the Identification of Gifted Students*. This 200-page document features some of the best practices in gifted identification currently in use across the country today. The monograph is a culmination project of research examining the reliability and validity of identification processes in the nation's school systems. The contents of the monograph include eleven chapters describing a diverse selection of innovative practices written by educators currently involved in implementing new practices of identification. The cases highlighted represent exemplary models which other schools may use as a guide for developing methods suitable to their context, philosophy, and needs.

The sites for inclusion in the monograph were selected two years ago from the NRC/GT collection at the University of Virginia and from over 25 Javits projects. The cases were rated against criteria emphasizing defensible conceptions of a process to identify underserved gifted populations, models supported by the literature in gifted identification, and practices linking definitions of giftedness with instruments used and programs being implemented. A philosophy of inclusiveness is prevalent across the sites selected. There is an overall acceptance of intelligence as multifaceted and a pervasive theme of emphasizing students' development over time. The variety of innovative practices included in the monograph describe model programs for locating and serving very young gifted minorities, processes for recognizing talent in the arts, and non-traditional assessment techniques coordinating with gifted programs. *Contexts for Promise: Noteworthy Practices and Innovations in the Identification of Gifted Students* presents the case studies in order to challenge educators to seek gifted students in all populations in effective and appropriate ways.

Identifying Gifted Preschoolers

A Teacher Training Video Package

This lively video is an aid to help teachers understand and recognize advanced abilities of children in their classrooms. It shows 3 and 5-year-old children from Newark, NJ performing tasks in three different areas:

• Spatial Skills • Verbal Skills • Problem Solving Skills

Gifted abilities are illustrated by comparing typical and gifted children of the same age performing the same tasks.

For further hands-on experience, the video package includes an accompanying teacher's manual. The manual revisits the tasks and points shown in the film. For further clarification, an additional task is presented and illustrated in each skill area.

For further information or to order ***Identifying Gifted Preschoolers,*** *please write or phone:*
Despi Laverick • Institute for the Study of Child Development • UMDNJ – Robert Wood Johnson Medical School
97 Paterson Street • New Brunswick, NJ 08903 • Phone 908-937-7700

and More Year 2 updates

A Continuing Dilemma: High Ability Students With Learning Disabilities

Sally M. Reis and Terry Neu
The University of Connecticut
Storrs, CT

In the last decade, much more attention has been given to the perplexing problem of high ability students who also have learning disabilities. Four books and dozens of articles have been written on this topic and still, problems exist with both identifying and providing special programs for this population. In addition to learning more about how to identify and serve this population, it is important to know how some high ability students with learning disabilities succeed in a university environment. To investigate this issue, The University of Connecticut site of The National Research Center on the Gifted and Talented implemented a study involving twelve young adults who succeeded in a post secondary academic environment, despite having a learning disability. Extensive interviews were conducted with both these young adults and with their parents. The interviews and a thorough review of available school records provide a fascinating portrait of the challenges and problems faced by high ability students with learning disabilities.

This article describes one of these students, Joe, a 21 year old junior who is a physics major at The University of Connecticut. Joe's school experiences are similar in many ways to a number of other participants in the study. He never really had to work in school because he learned quickly. His verbal IQ is over 150 and yet, he had problems in school that began at a very early age. In fact, he had so many learning problems in the primary grades that he was placed in a self-contained special education classroom from grades two through six. During his time in this self-contained classroom, Joe was instructed with students who were mentally challenged and who had specific learning disabilities. He became severely depressed. About this time in his education, he recalled: "It was degrading. I was very resentful of it. I don't really remember that part of my life that well. I've blocked it out. I knew I was different than the other kids." Joe was retained in fifth grade while in the self-contained special education class. He explained this by saying that he had become a disciplinary problem while he was in the classroom. Joe remembered with considerable anxiety incidents about his time in this class: "They used to send us out to recess with the mainstreamed kids. I remember being sort of alone and being made fun of. They called me retarded."

As the interview progressed, Joe recalled that school personnel released him from the special education class in sixth grade because they considered him "cured." He explains: "I was the first student to be completely mainstreamed out of the program in its history. The principal used to come down and observe me and they would bring visitors from here or there to talk to me."

Joe's mother was a dedicated advocate for him during all of his school experiences. She faced constant problems caused by her own confusion about how to help her son and the mixed messages provided by school personnel. In parent/teacher conferences, she was told year after year that Joe was so bright that maybe he would outgrow his learning problems. She sought help from private school psychologists and was a constant presence in Joe's life. She helped him with his homework, monitored his school progress, requested that his teachers modify his assignments, hired tutors, argued with the school district when he was placed in low level classes, and was there to request help and provide support. Through her later efforts, they located a university with a program for students with learning disabilities and supported Joe in all of his efforts.

After Joe was mainstreamed from his elementary self-contained special education class in sixth grade, he was given an IQ test. His scores were so high that school personnel considered him for the gifted program. Joe explains: "After my IQ test in grade six, they told me I had an IQ that made me eligible for the gifted program. So they gave me other tests (achievement tests) and told me that I didn't make it (the cut-off), but they told me not to feel bad because my learning disability caused me to score lower than normal people. So I would have made it had I not

been learning disabled." Joe's mother corroborates his memories about his failure to be placed in the gifted program despite his very high IQ score. She relates her memory of the testing for placement in the program: "However, following the IQ test the school personnel told him 'Gee, sorry kid, you can't spell, you can't be gifted'." Joe's mother commented on this incident as one of the many times that both parents "responded strongly and negatively" toward the school.

The negative messages and constant mistakes made with Joe and others in this study made the interviewing process difficult, as it was often almost impossible to withhold judgment on the school personnel who so consistently erred with this group of students. Half of the twelve subjects in this study were retained one grade in school and all had repeated negative experiences due to the interaction of their ability and their learning disability.

"I am rather resentful of public education as a whole."

Because Joe had difficulty both with reading and with handwriting, he was consistently placed in low level classes where he did not have to study very hard at all in order to achieve Bs and Cs. During his secondary years, he attended school in a different district and his parents did not provide records that labeled him as having a learning disability. Joe's mother was not in favor of having the school personnel know that Joe had a learning disability because of the type of program in which he would be forced to participate. This program model was a self-contained class and Joe's previous experience had proven to him and his parents that this would not be challenging for him. Accordingly, in both mathematics and science, he was able to participate in advanced classes because his learning disability was not known and because he pursued with complete attention all possible avenues of entry to these advanced classes.

Because of his earlier negative elementary school experiences, no further services were requested from the public schools. In fact, when Joe's mother decided another assessment should be completed to qualify for admission to a college with a learning disability program, she sought help from outside the schools. Joe explains: "We did it privately. We were not going to do it from the schools because we all assumed if they knew I was learning disabled, I would be booted out of most of my advanced (math and science) classes."

At this point, Joe became extremely interested in physics because of the physics teacher he had during his junior year of high school. Joe loved physics and received an A+ in the class. "He gave me an A+ because in his words, I knew more than he did about the subject." When asked how he had learned so much, Joe responded: "I read books on physics. I've read *A Brief History of Time*, *Coming of Age in the Milky Way*, and others."

Joe was able to overcome a severe learning disability to delve into physics and read extremely complex topics. Although very involved in a university learning disabilities program, it is now questionable whether Joe will finish college as he is currently on academic probation due to courses he must take outside of his major area. Despite extremely high abilities, Joe carries a great deal of anger about what happened to him in school, particularly his elementary school years. "I am very resentful of my elementary school treatment. I am rather resentful of public education as a whole. I don't know how else I could feel, but I'm not mad at very many individuals." When asked if he can reverse his current situation, Joe responds: "Well, I'm working on it now. You see, I think I've finally gotten over a lot of the anger I had towards school, and I have begun to start studying. I have begun to be organized about my work."

Our research on high ability students with learning disabilities has provided a fascinating portrait of the issues that must be addressed if these young people are to realize their potential. The compensation strategies necessary for the students to succeed, the advocacy necessary from parents, teachers, and the students themselves, combined with conditions that enable these students to succeed are all described in the study which will be available from the NRC/GT in 1993.

• • •

Attend a meeting of

Developing Giftedness and Talent

a newly formed network of ASCD

Saturday, March 27, 1993

8:00 a.m. to 10:00 a.m.

Sheraton Hotel – Washington, DC

Pat O'Connell Ross, guest speaker

Contact: Brian Reid, Department of Special Education; UAB Station; Birmingham, AL 35294-1250

Identification of the Musically Talented Student: The Assessment of Musical Potential and Musical Performance

Joanne Haroutounian
The University of Virginia
Charlottesville, VA

There is a rising tide of interest in the performing arts within gifted education, and many questions arise concerning effective procedures for identifying students who are musically gifted. Defining criteria that reflect the behavioral characteristics and fundamental abilities of talented music students and describe the specific qualities of excellence in performance is essential in creating a valid identification procedure.

The musically gifted student is not only taught within the school environment, but also through private lessons, in specialized schools and summer programs for the performing arts, and in gifted arts programs. Teachers who work within these different areas can provide valuable information concerning suitable criteria because they assess the process of improved performance and the growth of talent on a daily basis. In addition, asking professional performers how they feel about musical potential and assessment of performance can provide a perspective from an artist's viewpoint.

This study began with an analysis of identification instruments that were sent to The National Research Center on the Gifted and Talented at the University of Virginia. This analysis established a representative starting point of the criteria used nationally to identify musical talent within gifted programs. Additional audition forms and admission procedures were collected from performing arts schools, Governor's School programs, and music teacher organizations, in order to compare criteria used to assess performance and identification of talent within the specialized discipline of music.

The analysis of identification instruments revealed that procedures vary according to the availability of specific programming for those identified as musically gifted. Basic teacher checklists and rating scales begin the process, with some procedures offering a broader base of scales filled out by the student, peers, and parents. If programming is offered, this initial stage is followed by an informal interview and more specialized rating scales filled out by the music teacher. An assessment of musical performance is a common element in identification, usually done by an audition or by an informal performance experience evaluated by specialists within the field of music.

The analysis indicated that testing of music aptitude is not part of the normal procedure for identification. Gordon's *Primary Measures of Music Audiation* (1979) tests which discriminate low and average music aptitude were used in a few identification procedures sent to the NRC/GT. The *Intermediate Measures of Music Audiation* (1982), designed to discriminate and measure "music aptitudes of children with high music aptitudes" from ages 6-9 (Gordon, 1987, p. 120-121), were not included in any of the identification procedures.

A survey form was developed from the analysis of identification and audition instruments which contained lists of characteristics to assess musical potential and performance. Each list contained a five point scale from 1.00 (of no importance) to 5.00 (absolutely essential). The survey form also included checklists of representative identification procedures, as well as specific performance procedures used in auditions.

The survey was distributed to private music teachers, music teachers within the public schools, administrators and/or teachers in performing arts schools and summer programs, specialists within performing arts/gifted education, and professional performing musicians. A total of 121 surveys were completed, representing 23 different states. Only 13 gifted specialists completed the survey, with five of these gifted specialists returning blank forms, explaining a lack of an identification process or program within the performing arts in their school area.

Recent Research

Assessment of Musical Potential

The chart below contains characteristics in the Musical Potential Rating Scale of the survey together with the survey group mean results.

Musical Potential Rating Scale	Group Means
+1. *Shows a sustained interest in music and performing*	*4.35*
2. *Is self-disciplined*	*4.25*
* +3. *Responds discriminately to rhythm, melody, harmony*	*4.22*
* +4. *Can perceive fine differences in musical tone (pitch, loudness, timbre)*	*4.17*
5. Shows commitment in arts area	3.87
6. Can sing in tune well	3.81
7. Is self critical; sets high standards	3.81
8. Shows sensitivity to aesthetic elements of music, mood, style	3.81
*+9. Remembers and reproduces melodies with ease and accuracy	3.75
10. Can express emotions through sound or music	3.70
*11. Has a high degree of tonal memory	3.68
12. Is highly creative	3.56
13. Shows confidence in performing	3.54
14. Enjoys moving to rhythms and music	3.43
15. Evokes emotional responses from audience	3.31
* +16. Can identify a variety of sounds heard at a given moment	3.28
17. Is gifted in academic areas	2.92

The characteristics in *italic* print indicate those that were areas considered important (4) to absolutely essential (5). Those with an asterisk (*) are elements that music psychologists recognize as definitive of *music aptitude*. The characteristics with a (+) are found within the *Scales for Rating the Behavioral Characteristics of Superior Students* (**SRBCSS**) by Renzulli, Smith, White, Callahan, and Hartman (1976), a rating scale used in many general identification procedures.

It is of interest that the two highest rated characteristics dealt with general behavior rather than specific musical behavior.

The characteristic of *sustained interest*, found within the **SRBCSS** as noted above, was found on a majority of the instruments studied. The results of a one-way analysis of variance paired contrast statistical procedure showed that the characteristic of *self-discipline* showed a significant contrast ($p<.05$) between those teachers working in more specialized performing arts settings (private teachers, performing arts schools, performers) and those within the normal school setting (gifted specialists, music teachers). This may be a characteristic to explore in the development of future identification instruments.

The next characteristics listed are more music specific than the former. *Responding to rhythm discriminately* is found within the **SRBCSS** scales. The musical behavior of responding to a fuller range of musical qualities *(rhythm, melody, harmony)* merges perceptual listening to student performance. The ability *to perceive fine differences* in music is the basic measurement component used in Edwin Gordon's tests of musical aptitude: *PMMA* (1979), *IMMA* (1982), *MAP* (1965). This characteristic is also found in the **SRBCSS** scales mentioned above.

The characteristic of being *gifted in academic areas* had the lowest mean, 2.92, indicating it is rated not necessary (2) to helpful (3). The survey results regarding *academic giftedness* should be noted with interest by individuals who organize programs in the performing arts. By requiring an academic test score level as an entrance requirement to programs for the musically talented, we are identifying the academically gifted who are musicians, and possibly omitting the students who can be recognized for their musical talent, regardless of academic test records.

Assessment of Musical Performance

Some type of performance audition is normally part of any selection process within the performing arts. Analysis within this study indicates that audition forms and procedures vary greatly, and are usually locally devised.

The following characteristics for assessing musical performance contain criteria commonly found within audition and adjudication forms for musical performance:

Musical Performance Rating Scale	Group Means
1. *Pitch/note accuracy*	*4.73*
2. *Rhythmic accuracy*	*4.65*
3. *Steady rhythmic pulse*	*4.41*
4. *Dynamic contrasts*	*4.05*
5. *Technical fluency*	*4.01*
6. Appropriate tempo	3.96
7. Sensitivity to mood	3.96
8. Tonal color	3.75
9. Detailed articulation/bowing	3.72
10. Creativity in interpretation	3.68
11. Stylistic awareness	3.68
12. Confident memory	3.54
13. Poised stage presence	3.48
14. Originality	3.04

The *italic-face* characteristics are those rated as *important* (4) to *absolutely essential* (5) by the music teachers/performers. They indicated that a performance should be *accurate, rhythmically steady and precise*, with *dynamic contrast*, and performed with *technical fluency*.

The characteristic that received the lowest rating was *originality* (3.04). This may be explained by the lack of experience assessing improvisatory type of performances within music auditions. Musical training emphasizes technical facility and usually consists of performance from a score rather than composition or improvisation. This should spark the interest of teachers within gifted education, where creativity is a vital element in teaching and identification. Nurturing creative experiences within music may be a unique contribution that music programs within gifted education can offer talented music students.

A one-way analysis of variance paired contrast statistical procedure showed significant contrasts ($p<.05$) between the performer/private teachers who work outside the school setting and the performing arts/gifted/music teachers and specialists who work within the school setting in *every* area of the scale. What do these differences tell us about the assessment of musical performance?

Measurement experts agree that musical performance, by its very nature, is inherently subjective (Boyle & Radocy, 1987). Boyle and Radocy (1987) and Warnick (1985) agree that there is a great need of research in the area of musical performance to "improve the reliability and validity of performance appraisal" (Warnick, 1985, p. 40). The different responses to the assessment survey represent teachers who work with varied levels of performance within their teaching, and who each have a subjective idea of what a quality performance entails. This survey has gathered criteria that may assist in building a reliable and valid assessment instrument for performance.

The current study will expand on the ideas gleaned from the survey and the numerous comments received on the forms through interviews with persons within each representative group. By gathering valuable opinions and by further clarifying criteria from teachers/performers within all these different settings, hopefully, we can break new ground in building reliable identification procedures that will uncover potential musical talent and develop meaningful programs that nurture the creativity within these gifted musicians.

REFERENCES

Boyle, D. J., & Radocy, R. E. (1987). *Measurement and evaluation of musical experiences.* NY: Schirmer

Gordon, E. (1982). *Intermediate measures of music audiation.* Chicago, IL: G.I.A. Publications.

Gordon, E. (1965). *Musical aptitude profile.* Chicago, IL: G.I.A. Publications

Gordon, E. (1987). *The nature, description, measurement, and evaluation of music aptitudes.* Chicago, IL: G.I.A. Publications

Gordon. E. (1979). *Primary measures of music audiation.* Chicago, IL: G.I.A. Publications

Renzulli, J. S., Smith L. H., White A. J., Callahan, C. M., & Hartman, R. K. (1976) *Scales for rating behavioral characteristics of superior students.* Mansfield Center, CT: Creative Learning Press.

Warnick, G. C. (1985). Discovery and recognition of the artistically talented. *Journal for the Education of the Gifted.* 1, 221-238.

"But you're a man!!!"
Exploring the role of identification in role model and/or mentor relationships

Jonathan Plucker
West Point Post Schools
West Point, NY

Justice will not come to Athens until those who are not injured are as indignant as those who are injured. –Thucydides

I once told Barbara Kerr that after my gender equity workshops, people often remark, "That was good, but too bad a man had to do it." Dr. Kerr immediately replied, "Ah, and you're a man. The gender of the messenger isn't important - it's that you're doing it that matters." As 78% of math and science teachers in the public secondary schools are male, one would hope that they (and others who work with diverse populations) take the advice of Thucydides and Dr. Kerr and try to make a difference in the life of their students, even if their physical characteristics are not the same.

However, this attitude is not shared by all educators. During my preparation for a recent workshop on female participation and performance in science and math, a friend questioned whether I had bothered to get a woman's point of view. Explicitly, she had merely suggested that my presentation be comprehensive. Implicitly, however, her tone indicated that she was questioning whether the forces of socialization and gender stereotyping that women constantly encounter are beyond a man's understanding. I began to wonder if a male could be an effective "provider of guidance and awareness" (e.g., communicator, advocate, role model, mentor).

Although her comments were specific with respect to gender equity issues, my friend actually had raised an important, more global question: To what degree should an advocate, role model, or mentor's physical and intellectual characteristics match that of the person with whom they are working? The answer carries implications for people in a variety of fields, especially those who are attempting to serve as role models and advocates for other underachievers and/or provide equal educational opportunities to other special populations (e.g., learning disabled, high potential, minority). Since no theoretical explanation of role model/mentor identification processes exists in the literature, an exploration of the topic follows.

The central issue appears to be one of identification, as it pertains to locating an individual from whom you can receive advice, guidance, and inspiration. This process is popularly referred to as "finding someone whom you can relate to," due in part to an attractive physical and/or a personality trait, shared experience, or other characteristic. For example, Charles, a student with learning disabilities, frequently stopped by after school to work with me. I became his mentor and friend, helping him develop his strengths by learning how to transfer his wonderful ideas into real products. Charles' reactions can be analyzed at two levels: an obvious, visual level, which would involve those characteristics and experiences associated with physical manifestations (i.e., race, ethnicity, gender, age); and an internal, less conspicuous level, which deals more with emotions, interests, compassion for the individual, and other, sometimes hidden facets of personality and cognition. At the visual level, Charles had other male teachers that year, so a common gender could not have been the only factor. But at the internal level, our common love of thinking and my belief in his abilities (internal level characteristics) was enough to overcome our lack of strong, visual (and some internal) level commonalities. In this way, our relationship, based more upon internal than visual level characteristics, rested upon a strong foundation.

This proposed process is illustrated more formally in Figure 1. Once the process of attempting to find and identify with a provider of guidance or awareness is initiated, the individual conducting the search will ascertain whether potential providers exhibit any visual characteristics with which the individual can identify. If not, the search will continue, unless the provider's internal characteristics are evident and attractive (the dashed arrow). If the provider has attractive visual characteristics, then an initial, superficial relationship may form while the individual investigates the provider's internal characteristics. If the provider has attractive internal characteristics, a potentially long-lasting, effective relationship may form. However, a lack of attractive, internal characteristics will cause the individual to restart the identification process. The criteria for determining what constitutes an attractive, internal characteristic in a provider of guidance will vary with each individual, although studies of traits found to be desirable in professionals who work with talented children (Clark, 1983) suggest that several characteristics are generally desirable (i.e., high motivation, enthusiasm, compassion).

Some visual level characteristics co-exist with traits at the internal level that have been shaped by discrimination and stereotyping towards the visual characteristics. For example, my above-mentioned friend questioned whether a man is capable of understanding the forces of socialization and gender stereotyping that women constantly encounter. While I will not argue that some males encounter these same forces (I will save that for another article), the importance of compassion and an informed *understanding* of socialization forces should not be underestimated. Some of the research cited in Clark (1983) suggests that a hierarchy of internal characteristics may exist (based upon the traits' attractiveness to the individual), with the affective ranking higher in order of importance than the

cognitive traits. In this way, an obvious sense of concern for the individual's well-being may be more important during this identification process than familiarity with the experience of discrimination and stereotyping. After all, a disgruntled, female scientist talking only of bad experiences would not be the first choice to sit on a panel discussing opportunities for women in science and math, even though she obviously understands the forces of discrimination and socialization that women face.

Thinking back to a more historical example, I remember periods of my childhood when, not unlike other children, I bombarded my parents with cries of "You just don't understand!" and threatened to run away to the circus and live with the monkeys and clowns (whom I assumed could have understood me better). My parents could have chosen to believe that since they had no experience at raising a child, their attempts to be my advocates and role models were futile. At the visual level, their feelings would have been correct: I did not identify with my parents, choosing to admire other children who were my own age and with whom I had common interests. As I grew up, however, I eventually identified with my parents' interests at the internal level: Their concern for my well-being (i.e., compassion), my father's love of science and sports, and my mother's passion for math and writing. As such, they have had a large influence on my most crucial decisions and, therefore, my life.

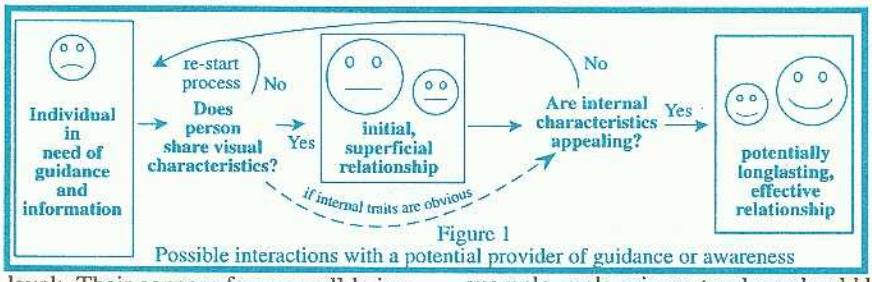

Figure 1
Possible interactions with a potential provider of guidance or awareness

Research on the effectiveness of advocates who do not share the physical characteristics of the population with whom they work is scarce. Inferences can be made, however, from studies of people who effectively participate in the effort to increase the participation and performance of women in math and the sciences. For example, Casserly (1979), in a study of high school science and math programs that "attract and hold high proportions of girls" (p. 346), found that AP math and science teachers were excellent recruiters and counselors for both male and female students, without specifying the gender of the teacher. Koballa (1988), in a study of high school females, determined which "communicators" and corresponding attributes were "perceive[d] as highly credible regarding reasons for taking elective physical science courses in high school" (p. 465). While women were identified more frequently as being credible, almost 30% of the credible communicators were adult males. Personal characteristics attributed to the credible communicators showed an emphasis on prestige, trustworthiness, and similar interests and beliefs. Identification due to these attributes would occur at the internal level, so that the gender of the role model would not necessarily have an adverse effect upon recruitment and education of potential achievers. My experiences with counseling young women have been successful because of shared beliefs in their abilities and interests, not because of a common gender.

A potential role model and/or advocate for a special population of underachievers will be most likely to attract the attention of students if they can relate to him or her through some characteristic at the visual level. An effective, long-lasting relationship, however, needs to be rooted at the internal level, where outward, physical appearances, labels, and abilities are less important than personality, interests, and attitudes. While people who share characteristics with students at the visual identification level have been shown to be effective role models, ascertaining that visual identification is necessary and/or sufficient for successful intervention is a misinterpretation of the research data. For while visual characteristics call attention to a prospective provider of guidance or awareness, identification with his or her internal characteristics ultimately determines the effectiveness of the relationship. For example, male science teachers should be encouraged to actively and enthusiastically recruit female students into taking science and math classes. Once there, a female student may identify with the teachers' passion for the topic, leading to a reversal of the female underachievement pattern in the quantitative disciplines.

If this proposed model is valid, then certain questions will be raised in the minds of educators: When trying to locate role models, mentors, and advocates for children, to what extent are shared physical characteristics important? Should a preference be given to those individuals with whom the children share physical characteristics or individuals who have attractive internal traits? Are visual characteristics necessary at all? And are there certain situations (e.g., when working with certain populations) when the visual traits of an advocate or role model are not as important when attempting to establish a relationship with children? Persons attempting to locate individuals to work with children as role models and mentors need to answer these questions, among others, in order to initiate effective, long-lasting relationships.

REFERENCES

Casserly, P. L. (1979). Helping able young women take math and science seriously in school. In N. Colangelo & R. T. Zaffrann (Eds.), *New voices in counseling the gifted* (pp. 346-369). Dubuque, IA: Kendall/Hunt.

Clark, B. (1983). *Growing up gifted* (2nd ed.). Columbus, OH: Charles E. Merrill.

Koballa, T. R. (1988). Persuading girls to take elective physical science courses in high school: Who are the credible communicators? *Journal of Research in Science Teaching, 25*, 465-78.

Newsletter Staff

Editors:
E. Jean Gubbins
Del Siegle
Editorial Board:
Joseph S. Renzulli
Nancy Lashaway-Bokina
Patricia Schuler
Yvonne Chambers
Dawn Guenther
Anne Mourning
Debra Dechaine

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