

## DOCUMENT RESUME

ED 402 709

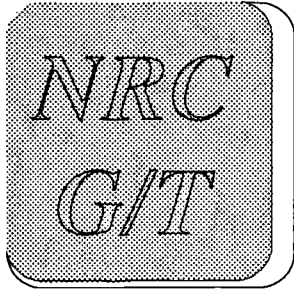
EC 305 217

AUTHOR Gubbins, E. Jean; And Others  
TITLE Developing the Gifts and Talents of All America's Students: NRC/GT--1990-1995.  
INSTITUTION National Research Center on the Gifted and Talented, Storrs, CT.  
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.  
REPORT NO RM-95218  
PUB DATE Aug 95  
CONTRACT R206R00001  
NOTE 156p.  
AVAILABLE FROM NRC/GT, University of Connecticut, 362 Fairfield Road, U-7, Storrs, CT 06269-2007.  
PUB TYPE Reports - Descriptive (141)

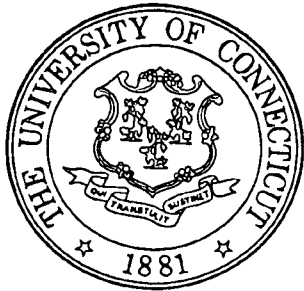
EDRS PRICE MF01/PC07 Plus Postage.  
DESCRIPTORS Ability Identification; Educational Practices; Educational Research; Educational Strategies; Elementary Secondary Education; \*Gifted; Gifted Disabled; Minority Groups; Professional Development; Program Administration; \*Program Development; Program Effectiveness; Program Evaluation; Research and Development; Research Projects; \*Talent  
IDENTIFIERS \*National Research Center on Gifted and Talented

## ABSTRACT

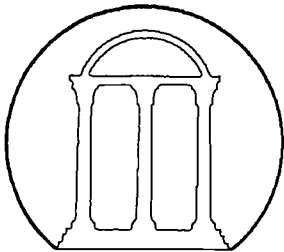
This monograph discusses the organization and mission of the National Research Center on the Gifted and Talented (NRC/GT) and describes the research studies and commissioned papers that the Center has sponsored. Part 1, "Dream and Design for the NRC/GT," provides an overview of the Center as an organization and describes how the research efforts have made an impact on students and practitioners throughout the country. Part 2, "Charting New Directions Based on Research," summarizes and synthesizes the research studies and commissioned papers under five main categories: (1) characteristics and identification (including the definition of giftedness and screening and identification techniques); (2) special populations (including cultural and ethnic groups and students with physical and learning disabilities); (3) program impact, options, and outcomes (including curricular and instructional differentiation and different program options); (4) professional development (including increasing the quantity and quality of teachers and providing challenging and appropriate learning options; and (5) policy, program organization, and management (including current status of programs, program organization, and program evaluation). An appendix presents a resource matrix of NRC/GT publications, displaying the research studies and commissioned papers by topics. The matrix is followed by a one-page abstract for each research study or paper and accompanying guidelines, recommendations, or conclusions. (Contains 75 references.) (Author/CR)



THE NATIONAL RESEARCH CENTER ON THE GIFTED AND TALENTED



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



1785  
The University of Georgia

Developing the Gifts and Talents of All America's Students  
NRC/GT—1990-1995

E. Jean Gubbins

David St. Jean

Bruce N. Berube

Joseph S. Renzulli

The University of Connecticut  
Storrs, Connecticut

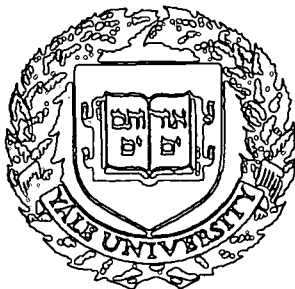


U.S. DEPARTMENT OF EDUCATION  
Office of Educational Research and Improvement  
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.



August 1995  
Number RM95218

EC 305217

**Developing the Gifts and Talents of All  
America's Students  
NRC/GT—1990-1995**

E. Jean Gubbins  
David St. Jean  
Bruce N. Berube  
Joseph S. Renzulli  
The University of Connecticut  
Storrs, Connecticut

August 1995  
Number RM95218

# **THE NATIONAL RESEARCH CENTER ON THE GIFTED AND TALENTED**

---

The National Research Center on the Gifted and Talented (NRC/GT) is funded under the Jacob K. Javits Gifted and Talented Students Education Act, Office of Educational Research and Improvement, United States Department of Education.

The Directorate of the NRC/GT serves as the administrative unit and is located at The University of Connecticut.

The participating universities include The University of Georgia, The University of Virginia, and Yale University, as well as a research unit at The University of Connecticut.

The University of Connecticut  
Dr. Joseph S. Renzulli, Director  
Dr. E. Jean Gubbins, Assistant Director

The University of Connecticut  
Dr. Francis X. Archambault, Associate Director

The University of Georgia  
Dr. Mary M. Frasier, Associate Director

The University of Virginia  
Dr. Carolyn M. Callahan, Associate Director

Yale University  
Dr. Robert J. Sternberg, Associate Director

Copies of this report are available from:

NRC/GT  
The University of Connecticut  
362 Fairfield Road, U-7  
Storrs, CT 06269-2007

Research for this report was supported under the Javits Act Program (Grant No. R206R00001) as administered by the Office of Educational Research and Improvement, U.S. Department of Education. Grantees undertaking such projects are encouraged to express freely their professional judgement. This report, therefore, does not necessarily represent positions or policies of the Government, and no official endorsement should be inferred.

---

## Note to Readers...

All papers by The National Research Center on the Gifted and Talented may be reproduced in their entirety or in sections. All reproductions, whether in part or whole, should include the following statement:

**Research for this report was supported under the Javits Act Program (Grant No. R206R00001) as administered by the Office of Educational Research and Improvement, U.S. Department of Education. Grantees undertaking such projects are encouraged to express freely their professional judgement. This report, therefore, does not necessarily represent positions or policies of the Government, and no official endorsement should be inferred.**

**This document has been reproduced with the permission of The National Research Center on the Gifted and Talented.**

If sections of the papers are printed in other publications, please forward a copy to:

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

---

## Acknowledgements

Reviewing the past accomplishments of The National Research Center on the Gifted and Talented (NRC/GT) has been a rewarding experience. So much high quality research has been designed and implemented by a talented group of professionals around the country over the past five years. It was time to look back at how the Center's organization made it possible for the initial research ideas to become a reality. It was also important to synthesize the work across studies and commissioned papers. This monograph has met these objectives through the efforts of many staff members. I would like to personally thank M. Katherine Gavin, Valentina Kloosterman, Mary Rizza, Patricia Schuler, Karen Logan, and Siamak Vahidi for their contributions. They spent many hours reviewing the Center documents to be highlighted and synthesized for this monograph on The National Research Center on the Gifted and Talented—1990-1995. None of our work, however, would have been fully realized without the vision of Joe Renzulli whose dream and design for The National Research Center on the Gifted and Talented has guided us for five years.

I would also like to thank the project liaisons from the United States Department of Education, Office of Educational Research and Improvement: Ivor Pritchard, Margaret Chávez, Patricia O'Connell Ross, and Beverly Coleman. They all devoted a considerable amount of time collaborating with us to make the NRC/GT the best possible research organization it could be!

*E. Jean Gubbins  
August 1995*

## Organization of the Monograph

*Developing the Gifts and Talents of All America's Students—NRC/GT—1990-1995* is divided into two parts. Part I: Dream and Design for the NRC/GT provides an overview of the Center as an organization and describes how the research efforts have already made an impact on students and practitioners throughout the country. Part II: Charting New Directions Based on Research summarizes and synthesizes the research studies and commissioned papers under five main categories:

- Characteristics and Identification
- Special Populations
- Program Impact, Options, and Outcomes
- Professional Development
- Policy, Program Organization, and Management

Part II also places the work of the Center in the context of the historical and contemporary research and practices in gifted and talented education.

Following these two parts of the monograph, you will find Appendix A: Designing and Developing Programs and Services for Students With High Abilities, which focuses on the specifics of the research studies and commissioned papers. The NRC/GT Resource Matrix of Publications displays the research studies and commissioned papers by the topics listed above. This matrix will help readers select publications that are most relevant to their present professional positions. The matrix is followed by a one-page abstract and accompanying guidelines, recommendations, or conclusions. This abbreviated information on our research studies and commissioned papers will aid readers in deciding which studies they would like to review in detail.

# **Developing the Gifts and Talents of All America's Students NRC/GT—1990-1995**

**E. Jean Gubbins  
David St. Jean  
Bruce N. Berube  
Joseph S. Renzulli  
The University of Connecticut  
Storrs, Connecticut**

## **ABSTRACT**

Five years ago the dream and design for The National Research Center on the Gifted and Talented (NRC/GT) were carefully crafted words on paper. The words provided a vision for theory-driven, practitioner friendly, and empirically sound research that would guide strategies and practices in gifted and talented education. In 1990, the United States Department of Education, Office of Educational Research and Improvement, awarded a grant to the consortium of The University of Connecticut, The University of Georgia, The University of Virginia, and Yale University. With the grant award under the Jacob K. Javits Gifted and Talented Students Education Act of 1988, two essential priorities were established: (1) identifying and serving students historically overlooked by traditional assessment methods (including economically disadvantaged individuals, individuals with limited English proficiency, and individuals with disabilities), and (2) the improvement of schools through cooperative efforts of a variety of educational and private agencies.

The primary mission of the NRC/GT has been to conduct quantitative and qualitative research studies, to commission research-based monographs on critical issues, and to disseminate the resulting information to multiple audiences. We wanted the research to be part of the pedagogy of classroom practices in a timely manner. To accomplish this translation from research findings to classroom practices, we created a network of schools, state departments, national and international consultants, and stakeholders that would have access to research results in multiple media formats. We "spread the word" about the Center's research to multiple audiences interested in developing the gifts and talents of all America's students.

The scope of the NRC/GT is described in Part I: Dream and Design for the NRC/GT. Part II: Charting New Directions Based on Research presents a synthesis of the findings and themes across studies and commissioned papers. The findings and themes are categorized by five topics:

- Characteristics and Identification
- Special Populations
- Program Impact, Options, and Outcomes
- Professional Development
- Policy, Program Organization, and Management

The Center's research is placed in the context of the historical and contemporary research and practices in gifted and talented education. Taken together, an extensive body of knowledge about students with high abilities is available to practitioners and researchers. A matrix of the studies by the categories listed above will aid readers in choosing studies



for further review. Following this presentation, abstracts and guidelines, recommendations, or conclusions for specific studies are appended.

Implementing new ideas, new strategies, or new programs is not an easy task. Through the research of the NRC/GT, we documented successful techniques of identifying and serving high potential, high risk students. We worked with teachers/researchers in experimenting with new methods that could be adopted to local conditions.

We wanted The National Research Center on the Gifted and Talented to break away from past research and programming practices and do things a little differently to ensure the findings reached educators in the classrooms who were in a position to initiate change. Change has taken place in small steps with the collaborative support, communication, and leadership of the university/school partnerships developed and nurtured throughout the country. The NRC/GT has had a very productive five years, and we have already witnessed changes in educational environments based on our research findings.

## Table of Contents

<b>ABSTRACT</b>	ix
<b>Part I: Dream and Design for the NRC/GT</b>	1
Introduction	1
Organization of the NRC/GT	1
Mission of the NRC/GT	2
Two-pronged Approach to Research	4
Research With the "Receivers" in Mind	5
Approach to Dissemination	6
Effectiveness of the NRC/GT Dissemination Plan	6
Impact of the Center's Research	7
The Change Process	11
Lessons Learned From the NRC/GT Research	12
Identifying and Serving Diverse Learners	13
Developing and Modifying Curricular and Instructional Techniques	13
Creating Programming and Service Options	14
Conclusion	15
<b>Part II: Charting New Directions Based on Research</b>	17
Characteristics and Identification	17
Definition of Giftedness	17
Student Characteristics	18
Screening and Identification Techniques	18
Special Populations	19
Cultural and Ethnic Groups	19
Physical and Learning Disabilities	20
Assessment and Identification Issues	21
Cultural and Ethnic Groups	21
Students With Physical and Learning Disabilities	22
Program Options, Impact, and Outcomes	23
Curricular and Instructional Differentiation	23
Program Options	25
Affect on Self-concept, Motivation, and Achievement	26
Program Impact	26
Academic Outcomes	26
Professional Development	27
Professional Development Plan	27
Challenging and Appropriate Learning Options	28
Policy, Program Organization, and Management	30
State Policy Elements	31
Current Status of Programs	32
Program Organization	33
Program Evaluation	34
Conclusion	35
<b>References</b>	37
<b>Appendix A: Designing and Developing Programs and Services for Students With High Abilities</b>	43

## List of Tables

Table 1.	Summary of the NRC/GT Products Across All Sites	9
----------	---	---

## List of Figures

Figure 1. The National Research Center on the Gifted and Talented

3

# **Developing the Gifts and Talents of All America's Students NRC/GT—1990-1995**

**E. Jean Gubbins  
David St. Jean  
Bruce N. Berube  
Joseph S. Renzulli  
The University of Connecticut  
Storrs, Connecticut**

## **Part I: Dream and Design for the NRC/GT**

### **Introduction**

The dream and the design for The National Research Center on the Gifted and Talented (NRC/GT) started long before the five-year award was granted in 1990 from the United States Department of Education, Office of Educational Research and Improvement. The dream was to establish a cohesive partnership between research and practice, focusing on how such research could be translated into simple, yet effective educational strategies. The challenge, therefore, was to establish a research center that would have immediate impact on the critical issues of the field of gifted and talented education and on education in general. To accomplish this end, the research agenda was being established as the final touches were crafted for the grant proposal. Such early planning has certainly paid off. The five-year grant period is almost complete, and it is now time to look back at The National Research Center on the Gifted and Talented and recognize it as a driving force in developing gifts and talents of all America's students.

### **Organization of the NRC/GT**

The National Research Center on the Gifted and Talented was organized around the central mission of conducting research that will translate directly into educational practice. The goal was to foster the development of "high-end learning" (Renzulli, 1994) opportunities for all students. The Center was funded from 1990-1995 under the Jacob K. Javits Gifted and Talented Students Education Act of 1988. Funding from this grant allowed for a broad range of topics pertaining to gifted education to be addressed. Because of this, the Center was able to avoid dealing with issues relevant to only a handful of researchers, and focus instead on more all-encompassing research topics.

Two essential priorities were established under the Javits Act:

1. Identification of talented students historically overlooked by traditional assessment methods (including economically disadvantaged individuals, individuals of limited English proficiency, and individuals with disabilities);
2. Improvement of schools from an entire state or a region through the cooperative efforts of a variety of educational and private agencies.

The role of The National Research Center on the Gifted and Talented was to conduct research and gather information that would allow the priorities of the Javits Grant to be fulfilled.

In terms of the organization, the Center was lead by a group of scholars from the Universities of Connecticut, Georgia, Virginia, and Yale University. While the researchers from these schools are recognized leaders in the field of education, many more educators were needed for The National Research Center on the Gifted and Talented to be a success. School districts, state and territorial departments, advisory councils, and consultants throughout the United States and Canada played a vital role in the establishment and development of the Center. As of 1995, 337 Collaborative School Districts, 52 state and territorial departments of education, 167 researchers at non-affiliated universities, and representatives from government, business groups, and education associations were involved.

Every state in the nation was included in our Collaborative School District network, representing over 9,800 schools and 4.5 million students. All 50 state departments of education and five territorial education departments have been involved in the research decision-making process that guided our work. This broad-based involvement was possible through local representation on state councils and state/regional representation on the national advisory council. The national advisory board was interconnected with state and territorial research advisory boards formed specifically to provide direction to the research studies carried out by the NRC/GT. Figure 1 illustrates the Center's major components.

### **Mission of the NRC/GT**

The primary mission of The National Research Center on the Gifted and Talented has been to plan and conduct theory-driven research that can be translated into effective educational practices. Embedded in this mission was a broad-based dissemination function, the goal of which was to "spread the word" about the latest developments in gifted and talented education. Another crucial aspect of the Center's mission was the development of a nationwide cluster of researchers that have a keen interest in fostering the development of young people. The Center's emphasis was to identify the needs of students who are often overlooked when considering programs for the gifted. Such students included economically disadvantaged youth, those with limited English proficiency, and individuals with disabilities.

The National Research Center on the Gifted and Talented also served as an intellectual center where scholars from a variety of disciplines came together to share their interests and ideas related to gifted education. Although research and scholarship were the primary mission of the Center, it is important to stress the fact that such research must be translated into effective practices that can be used by the entire educational community.

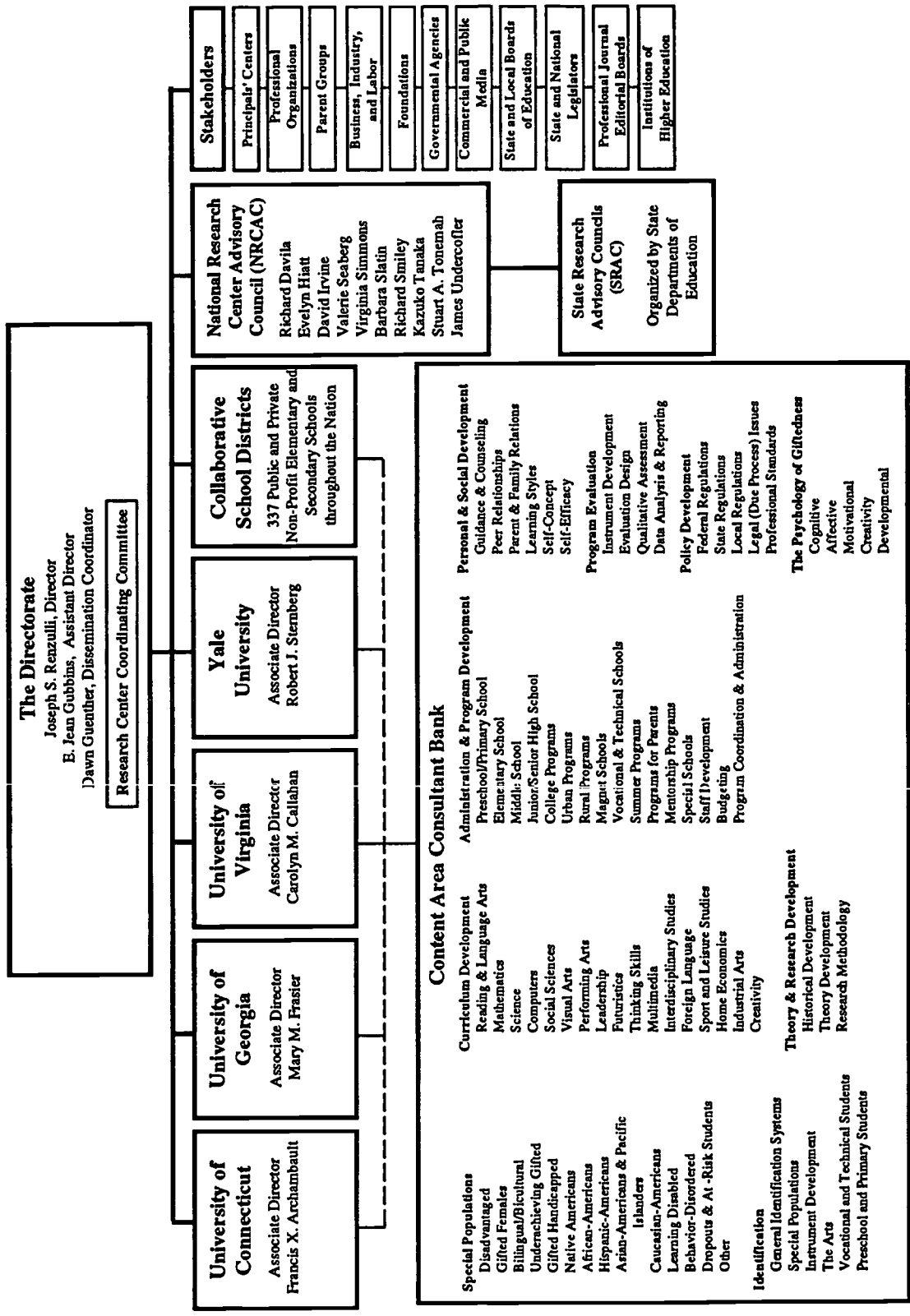


Figure 1. The National Research Center on the Gifted and Talented



## Two-pronged Approach to Research

With the organizational framework and the mission of the Research Center firmly in place, the research teams "hit the ground running." Realizing that research takes time, a two-pronged approach was developed to prevent a lengthy turnaround time with regard to research findings. The first approach focused on theory-based research studies, while in the second approach, emphasis was placed on the development of commissioned papers and collaborative research studies. Once again, emphasis was placed on ensuring that our findings would be practical and usable in almost any educational setting. Educators involved in our research have commented:

. . . The NRC/GT has spoken to research in a way never done before. We now have reliable data on the gifted population and can positively impact the regular curriculum . . . . (Linda Mucha, Coordinator, Gifted Education/Curriculum, Gulfport, MS)

The research coming from the NRC/GT is not only of high quality, but also very practical. Its studies on classroom practices, compacting, cooperative learning, and identification have been useful in our work here at Lincoln Public Schools. (Philip H. Schoo, Superintendent of Schools, and Thomas Hays, Consultant for Gifted Education, Lincoln, NE)

The National Research Center on the Gifted and Talented . . . is providing an important service for West Virginia's gifted and talented students. They conduct the most needed research (according to practitioners' reports on their needs) and report it to the school systems in such a timely fashion that research can truly guide practice, as it should. Instead of waiting one or two years longer for research results to be reported in books and journals, I receive research results within a few months of completion of the studies through the monographs published and disseminated . . . . (Edwina Pendarvis, Marshall University, Huntington, WV)

{The NRC/GT} has produced the most cogent and useful research that has ever come out of the education establishment. The National Research Center has focused on usable research and is consonant with the Javits Act's emphasis on the needs of disadvantaged youth. (James F. Undercofler, Executive Director, Minnesota Center for Arts Education, Golden Valley, MN)

Over the course of five years, 24 studies were implemented throughout the country. Our research teams worked closely with the Collaborative School Districts that were part of our network.

The second approach ensured that information pertaining to our one and two year studies was made readily available. It also allowed us to expand our network of researchers throughout the country. All of the commissioned papers and collaborative research studies were directly linked to the mission and research agenda of the Center, as determined by the needs of practitioners. Responses to monographs in the research series have included:

Passow, A H., & Rudnitski, R. *State Policies Regarding Education of the Gifted as Reflected in Legislation and Regulation.*

The authors are to be commended for tackling such an elusive task . . . .  
(Pat Stafford, State Department Coordinator, Indianapolis, IN)



I feel this is an important document, one that will be of tremendous benefit to administrators at all levels as they plan for quality gifted programs. (M. Gail Hickey, Indiana-Purdue University, Fort Wayne, IN)

Robinson, N. M. *Parenting the Very Young, Gifted Child.*

The writing is a real service to parents of young gifted children; next to nothing had been written for them until now. (Gina Ginsberg Riggs, Gifted Child Society, Inc., Glen Rock, NJ)

Very interesting and long overdue. (Florence Caillard, Director, Montessori-Mt. Hope School, Mansfield Center, CT)

Jarwan, F. A., & Feldhusen, J. F. *Admission Programs of Residential Schools of Mathematics and Science for Academically Talented Youth.*

My careful study of this comprehensive technical report has only served to reinforce my respect and admiration for the work being conducted by The National Research Center on the Gifted and Talented . . . . This report is a model of what an excellent technical report needs to be, both in structure and content. The abstract and summary of recommendations will likely result in broad penetration of this information within and beyond our community of scholars and practitioners. (Sanford J. Cohn, Arizona State University, Tempe, AZ)

I certainly feel it is meritorious and makes a contribution to the field. (Kathleen Noble, University of Washington, Seattle, WA)

Clark, G., & Zimmerman, E. *Programming Opportunities for Students Talented in the Visual Arts.*

It is obviously well written and thoroughly researched. (Patricia Hollingsworth, University of Tulsa, Tulsa, OK)

There is much work yet to be done, and we owe Clark and Zimmerman, pioneers in this field, a debt of gratitude for keeping the dilemma of the arts talented students in the forefront of the gifted and talented community. (Claire Krause, Lebanon Public Schools, New Lebanon, CT)

Since 1990, we have produced over 25 commissioned papers and collaborative research studies focusing on topics such as grouping practices, cooperative learning, reading, mathematics, parenting, self-concept, program status, and the arts.

## Research With the "Receivers" in Mind

A major issue of concern regarding research is the audience for whom the research is written. Many scholars often make the mistake of communicating their results in such a way that is understood only by fellow researchers. While their findings may have a significant impact on educational practice, they go unnoticed because they were not translated into concrete recommendations and practical suggestions. Other researchers may be very skilled in communicating their plans and findings in varied formats for multiple audiences. The multiple formats allow audiences—the receivers—to choose the level of complexity. They select the level that is most appropriate for a good grounding in the topic—then they may choose the next level of complexity for more detailed information. For our Research Center, the audiences were of primary importance. We knew that we

would conduct sound research—that was a given. The challenge was to conduct sound research that would reach millions of people.

## **Approach to Dissemination**

One of the most exciting aspects of the Center's work has been the ability to disseminate products to a wide variety of audiences. The audiences have ranged from teachers, parents, administrators, and legislators to other researchers. Key considerations in this dissemination process included the use of a wide range of media, professional advertising techniques, and allowing educators frequent exposure to the latest findings (Renzulli & Gubbins, 1994).

To drastically increase the dissemination process, the Center's documents were not copyrighted. Network members were allowed to copy our documents and send them to any interested party. We also offered our materials for reprinting in other publications. We frequently received phone calls from newsletter editors asking about the latest research findings that could be shared with their organization's members. A sample of organizations includes:

- *National Council of Teachers of Mathematics News Bulletin*
- *Gifted Education Review*
- *Advocate*—Connecticut Association for the Gifted
- *Talent Search Reporter Newsletter*—California State University
- *Minnesota Council for the Gifted and Talented News*
- *Translations From Theory to Practice Newsletter*—National Art Education Association
- *Communique Newsletter*—National Association for Gifted Children

Recently, we received a call from the National Association of Gifted Children requesting advertisements for our newest products. We periodically sent professional ads to newsletter editors. They became so acclimated to the process that the editors now contact us. The professional ads appeared in journals and newsletters at no cost to the Center. If an ad appeared, we asked the editors to send us a copy of the publication and we, in turn, provided them with a complimentary copy of the product. A dramatic illustration of the effectiveness of this approach was the appearance of an ad for the NRC/GT video training tapes displayed in the *FLAG (Florida Association for the Gifted) Newsletter* (August 1994). Our ad appeared on the left hand page of the *FLAG Newsletter*; on the right hand page was a price list for ads—which, of course, did not apply to us.

## **Effectiveness of the NRC/GT Dissemination Plan**

Our dissemination plan was constantly monitored through our Reader Evaluation Surveys placed in a random sample of mailings, evaluation forms for satellite presentations, and unsolicited comments from "the receivers" of our information. Comments about the effectiveness of the dissemination process included:

Thank you for the newsletters, studies, periodic updates/announcements. I thought you'd like to know the outcome of the school district budget battles here. We (the parents' group) lobbied & worked hard, using the Center's Research & kept the budget for G&T constant for school year 92-93. Your stuff is "just what the doctor ordered." Furthermore, G&T intern coordinator (actually an experienced G&T

teacher who's an officer in the Texas Association for G&T) was hired using federal funds, to replace the previously abolished position of G&T district coordinator for 91-92. (Virginia Winbow, Parent Association, Houston, TX)

Just a quick note to thank you both for the wonderful information you sent on gifted education in the context of school reform—I got right on track of all the resources . . . . Service like this is the reason (one, anyway) that the NRC has such a great reputation—which I will surely perpetuate any time I'm asked! (Felice Kaufman, Council for Exceptional Children, Reston, VA)

The research and monographs produced by the NRC/GT have been of outstanding quality and of great usefulness to practitioners and parents in Connecticut. The NRC/GT has provided a psychological lift to the field and an indication that our nation values excellence as well as equity. (Vincent L. Ferrandino, Commissioner of Education, Hartford, CT)

We have received research updates and information through presentations, videos, teleconferences, briefs, abstracts, etc. The information has been beneficial to our program as it was shared with administrators, teachers, and parents. The Center's research is having a major impact on both gifted education and education in general. (Judy Cropper, Coordinator, SPARK Program, Seaford, DE)

The National Research Center on the Gifted and Talented has been an invaluable resource, especially for those of us in the rural areas of the country who have limited access to research centers. The studies and monographs have helped us keep current and thereby serve our students more effectively. (Sally Boeschenstein, General Education Consultant, Centreville, MI)

This center has been a source of support for parents, teachers, and administrators in their search for information on funding, current research, program opportunities, and curriculum options for gifted and talented students . . . . The NRC/GT has been like a beacon in a storm for those of us that administer and teach in gifted and talented programs. (Nancy Lashaway-Bokina, Edinburg Public Schools, Edinburg, TX)

The National Center has been a major force in the field of education for the gifted and talented and has provided superb services through presentations, computer databases, and journal and magazine articles which have reached millions of people . . . . (Joan S. Wolf, Coordinator, Gifted/Talented Program, Salt Lake City, UT)

### **Impact of the Center's Research**

The impact of The National Research Center on the Gifted and Talented was assessed in many ways. Four significant elements helped to shed light on the Center's effectiveness: 1) the objectives accomplished, 2) productivity over the past five years, 3) the results of external evaluation, and 4) the implementation of research findings into classroom practice.

Eleven major categories of objectives were accomplished over the past five years. They include items such as designing, implementing, and conducting research studies with the help of Collaborative School Districts; developing a comprehensive dissemination

program to make research findings readily available; and developing a broad-based theoretical framework for the study of the gifted and talented.

In terms of productivity, over 895 presentations were made at local, state, national, and international conferences, and at public and private school districts and organizations. We also published over 325 journal and magazine articles, books, and papers and produced nine videotapes (three of which were satellite teleconferences). The extensive press resulting from the publications and media presentations has reached over 43 million people around the world (see Table 1).

These production rates certainly rivaled any other educational organization of its size and funding level. The products reached millions of people and will continue to do so through the ERIC Clearinghouse. The dissemination strategies was so effective that the number of people who have access to the research findings continues to increase geometrically.

The external evaluation of the impact of The National Research Center on the Gifted and Talented, conducted by Dr. Donald Treffinger, highlights many of the key features that have made the Center such a success. His evaluation focused on five essential points:

1. The Center has done an excellent job of adhering to its original mission and objectives: to provide theory-driven research that will result in practical strategies that can be incorporated into the school setting.
2. The Center has spread its influence beyond the boundaries of gifted education. By presenting research findings to "the larger educational research community . . . and to administrators, teachers, and concerned citizens" (Treffinger, 1994, p. 6) it has allowed gifted education to become part of the whole school agenda.
3. The Directorate has produced a wide variety of resources to spread the word about its latest research findings. Such resources include technical reports, monographs, and videos.
4. The resources that have been developed by the Center are practitioner friendly in that the results of the research have been translated directly into suggestions for educational improvement.
5. The Center has had a significant impact on education in general. Research reports have consistently been accepted by journals in gifted education, education, and the social and behavioral sciences. Researchers involved with the Center have also been actively involved in presenting their findings to national education organizations.

Finally, the best way to assess the impact of the Center is to present what educators have said regarding our research agenda. We made sure our research focused on what practitioners needed to know in terms of improving educational opportunities for gifted and talented students. Five topics categorized our research:

- Characteristics and Identification
- Special Populations
- Program Impact, Options, and Outcomes
- Professional Development
- Policy, Program Organization, and Management

Table 1

Summary of the NRC/GT Products Across All Sites

08/25/95

<i>Dissemination/ Deliverables</i>	1990-91	1991-92	1992-93	1993-94	1994-95	Total
Presentations	88 (18,555+)	158 (21,341+)	248 (32,687+)	194 (18,255+)	209 (24,707)	896 (115,445+)
Press on NRC/GT	35 (3,291,944+)	129 (7,878,486+)	68 (4,129,361+)	121 (17,261,966+)	106 (10,470,702+)	459 (43,032,457+)
Computer Databases/ Research Archives	4	15	0	1	0	20
Consumer-Oriented Guidebook	1	4	2	1	1	9
Video Training Materials	3	1	1	1	3	9
Instruments/Instrument Repositories	15	3	1	0	1	20
Briefs/Abstracts/ Annotated Bibliographies	4	1	3	0	3	11
Classification Matrices	2	1	0	0	0	3
Journal Articles/ Magazine Articles/ Books/Papers	27	59	81	78	81	326
<b>Total</b>	<b>179 (3,310,499+)</b>	<b>371 (7,899,827+)</b>	<b>404 (4,162,048+)</b>	<b>396 (17,280,221+)</b>	<b>389 (10,495,409+)</b>	<b>1,771 (43,147,904+)</b>

Note: Numbers in parentheses are an audience estimate, all others are frequencies.

The voices of the educators involved in the research serve as documentation of our success:

Until the Center was established under the Javits Act, there was really no coordination of research and writing about concerns of parents and educators of gifted children. Since the Center has been established, the discipline has developed a real order and coherent agenda, and needs of gifted students, especially those in greatest danger of "falling through the cracks," are finally being addressed with a true collaboration between schools and universities. (Cecile P. Frey, Supervisor, Gifted Support Programs, Ardmore, PA)

Our school system has received a wealth of invaluable information from the research studies conducted by the Center. The knowledge and expertise they share has addressed major issues in the field of gifted and talented education that directly relate to current goals for our system . . . . This year alone our staff has used practitioner guides, research monographs, newsletters, journal articles, conference presentations, videotapes, and instrument repositories to guide us in our work. (Beverly Catlin, Gifted Education Coordinator, Charlottesville, VA)

As a Collaborative School District for the NRC/GT, we have participated in several of their studies and have become aware of the profound need for teachers to modify the curriculum and to select learning at the correct level of difficulty for these children. At a time when so many of Connecticut's Gifted and Talented programs have been eliminated because of budgetary reasons, the Center has offered a "ray of hope" for students and teachers . . . . The magnitude and quality of the work of this Center has been extraordinary. (Margaret Beecher, Curriculum Specialist, West Hartford, CT)

{The NRC/GT} is the only form of national leadership that "gets its hands dirty" by working with schools, teachers, and gifted kids to create a social and academic environment that matches the high talents of gifted students, as well as providing similar educational experiences for all students. In addition, its practical in-school focus, a main thrust of the NRC/GT is organizing "consumer-oriented research" that provides answers to recurrent problems in designing effective gifted programs. I have a stack of high quality NRC/GT research reports and research reviews whose practical information is incorporated into my teacher-training G/T classes and into my G/T textbook. (Gary A. Davis, University of Wisconsin, Madison, WI)

Research from centers such as the NRC/GT are wells from which we draw sustenance. We are teaching better because of the research coming to us through NRC/GT. (Peter Reynolds, Principal, Newport's Primary School, Newport, NH).

Not only have practitioners praised our work. Many authors and researchers included our research findings in their own writings. Dr. James Gallagher, Editor of the *Journal for the Education of the Gifted*, specifically requested that we prepare a special edition of the journal devoted to the results of the NRC/GT studies. The Winter 1993 edition was well received. Several authors incorporated information about the NRC/GT in recently published textbooks, including:

- Davis, G. A., & Rimm, S. B. (1994). *Education of the gifted and talented* (3rd ed.). Boston: Allyn & Bacon.
- Genshaft, J. L., Bireley, M., & Hollinger, C. (Eds.). (1995). *Serving gifted and talented students*. Austin, TX: Pro-Ed.

- Gallagher, J. J., & Gallagher, S. A. (1994). *Teaching the gifted child* (4th ed.). Boston: Allyn & Bacon.
- Piirto, J. (1994). *Talented children and adults: Their development and education*. New York: Macmillan.

The results of the first year research studies by The National Research Center on the Gifted and Talented were incorporated into the report by the United States Department of Education entitled *National Excellence: A Case for Developing America's Talent* (1993). The report emphasized the need to provide "alternative learning opportunities" for those students who have already mastered the objectives of the regular curriculum. The report also stressed the need to utilize community and out-of-school resources to challenge students in need of advanced learning experiences.

The National Research Center on the Gifted and Talented has had an incredible impact on the programs and services for students with emergent and known talents. The impact has occurred in a relatively short time period, and it will continue after the funding period because so many of the products and organizational strategies have been documented using various mediums.

We started out with a mission that would guide instructional and programmatic changes, but we knew it wouldn't be easy. The change process proved to be difficult at times, but some changes went beyond our expectations.

## The Change Process

In dealing with the change process, it was important to recognize that progress must be made in small increments, as opposed to a few huge steps. While the end goal was to plan major changes for educating children, attention must be given to gradually altering the attitudes of administrators and teachers. The change has to be introduced, practiced, refined, refocused, and practiced again. The change will not become part of the administrators' or teachers' repertoires until it becomes second nature. It is also important to assess the feedback given by teachers and administrators so that revisions can be made and further effective changes made.

Since the beginning of our research, significant changes have been noticed in the attitudes of both educators and students. Learning a new instructional strategy or becoming aware of the emerging talents of students was a validation that the change process occurred. For example, one teacher commented on the progress of a student in this way:

The quality of Brianna's work in mathematics has improved dramatically. She seems to be a different person. Her self-confidence, interest in school, and commitment to improving math skills are truly amazing. I wouldn't have recognized her abilities if I didn't have the training that sensitized me to the characteristics of students with veiled talents. I now know how effective the training was and look forward to future professional challenges . . . .

This teacher also pointed out her role as a teacher/researcher for one of our national research studies. The role energized her to think about students in new ways and plan challenging instructional opportunities for all. She wasn't on her own in the classroom trying to resolve issues affecting the learning opportunities of students. She was part of a network created by The National Research Center on the Gifted and Talented.

Involvement with The National Research Center on the Gifted and Talented meant that resources were available on diverse topics relating to the improvement of educational opportunities for all students. Our primary goal was to ensure that teachers and administrators had immediate access to our research findings. The multi-faceted approach to dissemination allowed this to occur. There was still a question, however, as to how our findings would reach all students. Once again, comments from educators involved in the Center illustrated the impact of our work:

The research . . . has already had a positive impact on the quality of curriculum in our schools and these positive changes have improved curriculum not just for some small group of students, but for ALL students . . . . The National Center has presented opportunities, resources, and encouragement to many districts and has proven that many students can profit from a broad range of challenging curricular experiences. They have . . . built a collaborative national consortium effectively analyzing and providing solutions to a sometimes archaic education agenda. (Susan Harman, Englewood, CO)

The Center has been involved in numerous research projects which directly benefit our country's brightest children . . . . In addition to research on the gifted, the Center has been involved in studies which have developed instructional procedures and programming alternatives that emphasize the need to provide a broad range of advanced enrichment experiences for all students. Through written materials and training videos, teachers have been instructed in the methods of providing these experiences. (Carol L. Miller, Teacher of the Gifted, Wethersfield, CT)

One of the efforts of this Center has been to focus on ways in which some of the strategies of gifted studies and techniques have been useful in total school improvement and the enhancement of performance of all students. (E. Paul Torrance, Distinguished Professor Emeritus, University of Georgia, Athens, GA)

I must tell you that the focus of the Center and its subsequent dissemination of material has been very valuable to our school district as we work towards total school improvement and the enhancement of performance among ALL students. (M. Sue Whitlock, Supervisor Gifted Education, Fort Washington, PA)

As a Collaborative School in the Center, I am aware that the research being accomplished is enriching to an entire school population. Strong gifted programs based on sound educational practices strengthen entire school bodies and introduce strategies and techniques which enhance performances of all students . . . . The Center has produced technical reports, practitioner guides, research monographs, newsletters, briefing sheets, journal and magazine articles, videotapes, computer databases, and instrument repositories in addition to presentations by personnel. The result has been an overwhelming amount of materials which has been badly needed in our field. (Janet E. Rabin, Coordinator, Eastern High School's Gifted and Talented Program, Voorhees, NJ)

### **Lessons Learned From the NRC/GT Research**

All of the research conducted by The National Research Center on the Gifted and Talented resulted in lessons learned. Some of our findings confirmed earlier research, while others shed new light on unresolved issues. Three lessons learned based on the



research topics listed earlier are highlighted here as illustrations of the impact of the NRC/GT. The lessons fall into three categories:

- identifying and serving diverse learners;
- developing and modifying curricular and instructional techniques; and
- creating programming and service options

### **Identifying and Serving Diverse Learners**

Although programs for students with high abilities have been implemented throughout the country for decades, a concern related to identification practices has recently arisen. The primary method of identifying students for gifted programs has been, and continues to be, the use of achievement and intelligence tests. Such tests have been seen as objective measures of students' abilities. Once identified, students often remain in special programs indefinitely, regardless of whether or not they exhibit the qualities characteristic of high ability.

This notion is beginning to change, however. Teachers are beginning to realize that tests are not the only source of information that can be used to assess potential talent. In fact, such tests often overlook a diverse array of talents that need to be nurtured. The new approach to identification emphasizes the use of a wide variety of techniques including product assessment and student observation. Teachers must become talent scouts who search for abilities that need to be developed. Instead of focusing on labeling students, teachers need to look for "gifted behaviors" and provide opportunities that will strengthen each student's talents. Such opportunities include open-ended learning activities and performance tasks in which students demonstrate content expertise, problem finding, problem solving, and creativity (Runco, 1993).

### **Developing and Modifying Curricular and Instructional Techniques**

Our research has shown that the curriculum used in many classrooms does not meet the needs of many high ability students. The grade level curriculum simply does not provide challenge for those students who need it most. We understand that students have multiple strengths and such strengths vary considerably among students. A "one size fits all" curriculum is not realistic, given the prior experiences of each student. The question that often goes unanswered about curriculum is: What do students already know about this topic? The question sounds simplistic, but investigating the answer seems difficult for some.

Teachers frequently review curricular plans for students and prepare materials in various subject areas. During this process, the strengths of each student need to be considered and appropriate curricular adjustments have to be made. The process of streamlining or compacting the mastered curriculum is illustrated through the following field notes and interview comments:

Five students were in the compacted mathematics group and were working several chapters ahead of the rest of the class. {The teacher} asked the five students to come up to the round table in the corner of the room and spent approximately ten minutes with them. During this time she discussed ratio (something they were currently studying) and, then, demonstrated how to use protractors to measure degrees in angles (which would come in the next chapter). These students were receiving accelerated and enriched mathematics instruction. Then, she dismissed the group and said, "Do four pages in the next chapter {measurement and geometric

figures}. Along the way, you decide which problems you need to do to help you understand measurement of triangles." (Westberg, 1994)

When interviewing John and Philip, I asked them to explain how compacting in mathematics worked in their classroom. Philip said, "We take a pretest on a chapter and if we get better than a 90% score, we don't do that chapter." When I asked him what he did instead, he said, "We move ahead a chapter or do other things with it or sometimes we do different work like the average fifth grader project." When asked if they liked compacting, they responded: "It is fun. We don't have to do the same work as everybody. (John) I don't have to do math I already know. I get to skip part of it and move on." (Philip) (Westberg, 1994)

The NRC/GT research has confirmed that when given the opportunity to eliminate previously mastered curriculum, students willingly accept challenging learning opportunities. They become engaged in their work and recognize the joy of learning. By providing challenging learning experiences, students avoid boredom and needless repetition. The teacher must look for students' strengths and interests and provide advanced curricular options to meet their needs.

In order for teachers to increase the challenge level of the regular curriculum, they need time for planning and collaboration. An attempt needs to be made to reconsider the persistent use of traditional approaches to teaching, ones that emphasize lecture, whole group instruction, textbook-driven lessons, and drill and recitation. Teachers need to examine alternative approaches to instruction that emphasize problem-based learning, hands-on instruction, and simulations. Open-ended learning activities require the active involvement of all students as contributors to their learning experiences. Personal engagement with learning has long-term benefits for all students.

One teacher described her approach to developing and modifying curricular and instructional techniques as follows:

{My focus} is to develop a program that really meets the needs of every individual . . . I have 29 children. They're all different. And I don't think there are any two who have the same program from the beginning of the day to the end. I know there aren't . . . I have to see what their needs are, what their abilities are, and devise a curriculum for each person. It doesn't mean sitting and planning out 29 different things for every minute, but there are special things that every child is doing that are different from everyone else. I have to make sure that it's interesting, that they are being challenged, and it's not a repetition of what they've done before {they came to the school} which is just getting easy work finished and trying to find something to do with their time. (Delcourt & Evans, 1994, p. 27)

### **Creating Programming and Service Options**

All innovative programs need professional, personal, and financial support if they are to be maintained and extended in school districts today. A simple fact is that such programs are often eliminated due to budgetary constraints regardless of the program's effectiveness. Emphasis needs to be placed on developing a strong leadership team. If the success of the program is not disseminated to administrators and the general public, its stability will always be in jeopardy. A superintendent commented:

I support the gifted and talented program and I relate the successes of it to the Board of Education and the town groups. I try to keep them educated so that they will provide the resources for it to continue. (Westberg, 1994)

Nurturing programs and services for high risk, high potential students is a necessity. Administrators and teachers must be committed to identifying and serving students from traditionally underrepresented populations, including economically disadvantaged individuals, individuals of limited English proficiency, and individuals with disabilities. The talent potential among these target populations of the Javits Act has not always garnered the attention of program developers. With federal legislation in place for research and programming, past practices should change. Promising practices and strategies have emerged through the applied research studies of the NRC/GT.

As we researched programming and service options for high risk, high potential students, the lessons learned seemed applicable to educational change in general:

- availability of personnel and community and material resources
- use of peer coaching and collaboration
- support of the administrative team
- access to professional development opportunities
- commitment to change on the part of all staff directly involved

## Conclusion

Implementing new ideas, new strategies, or new programs was not an easy task. It is so much easier to maintain the status quo or teach the same way we were taught. Breaking away from the history of our own educational experiences can be both difficult and frustrating. Through the research efforts of the NRC/GT, we documented successful techniques of identifying and serving high potential, high risk students. We worked with teacher/researchers in experimenting with new methods that could be adapted to local conditions. Our initial plans for these methods and our findings to date have all been documented and are available to the public.

We wanted The National Research Center on the Gifted and Talented to break away from past research and programming practices and do things a little differently to ensure the findings reached educators in the classroom who were in a position to initiate change. Change has taken place in small steps with the collaborative support, communication, and leadership of the university/school partnerships developed and nurtured throughout the country. The NRC/GT has had a very productive five years. We have already witnessed changes in educational environments based on our research findings, which were highlighted earlier under Lessons Learned From the NRC/GT Research and elaborated in Part II of this report.

Part II: Charting New Directions Based on Research describes overall findings and themes across several of our research studies and commissioned papers. Part II also places the work of the Center in the context of the historical and contemporary research and practices in gifted and talented education. The findings and themes have been categorized by five topics:

- Characteristics and Identification
- Special Populations
- Program Impact, Options, and Outcomes
- Professional Development
- Policy, Program Organization, and Management

## Part II: Charting New Directions Based on Research

### Characteristics and Identification

In passing the Jacob K. Javits Gifted and Talented Students Education Act of 1988 (P.L. 100-297), Congress reaffirmed the conviction that in every population there are individuals with potential for outstanding achievement. Yet, there are certain groups of students that are consistently underrepresented in gifted and talented programs. They have been identified as the underachieving, poor and minority gifted children, the creative and divergent thinkers, and those with disabilities. By focusing on new constructs of giftedness and more effective identification procedures, educators will be able to identify and nurture talent potential among all learners.

#### Definition of Giftedness

*The talents of these learners will be unveiled by enriching the tapestry of the curriculum. The emphasis becomes more than just talent recognition—it is talent development. (Gubbins, 1995)*

In 1925, Terman's *Genetic Studies of Genius* provided a narrow definition of giftedness, limited to intelligence, academic aptitude, and academic achievement. Over the years, the meaning of giftedness has expanded, particularly with new theories of intelligence by Gardner (1983) and Sternberg (1985). Thus, based on the definition in the Javits Gifted and Talented Students Education Act, the United States Department of Education in its report, *National Excellence: A Case for Developing America's Talent* (1993) defines gifted and talented students in the following manner:

Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment.

These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools.

Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (United States Department of Education, 1993, p. 26)

This does not imply, however, that there is agreement in the field on a single definition of giftedness. In fact, there is much discussion surrounding the concept of giftedness. At one end of the continuum are definitions based on single characteristics, such as math aptitude or creativity, and at the other extreme are definitions that include a wide range of traits or qualities. The actual qualities within the definition vary in their emphasis on the cognitive and/or affective domains. There is also disagreement in the level of exceptionality. For example, one school system may use a 90th percentile cut-off on standardized tests while another may have 70th percentile as the cut-off. Similarly, a different definition of giftedness is implied when teachers in some school systems identify all their above average students for their gifted programs, and teachers in other school systems identify only their top four students for their gifted programs.

## Student Characteristics

Over the years, researchers have identified traits, aptitudes, or behaviors that appear to be common to all gifted children, regardless of their cultural background (Clark, 1993; Frasier & Passow, 1994; Hoge & Renzulli, 1991; Renzulli, Smith, White, Callahan, & Hartman, 1976). Gifted children demonstrate exceptional or unusual ability relative to these traits. Sometimes called "absolute attributes of giftedness," these traits include: motivation, interests, communication skills, problem-solving ability, memory, inquiry, insight, humor, reasoning, and creativity/imagination (Frasier & Passow, 1994). Gifted economically disadvantaged and culturally diverse students display these absolute attributes in specific ways. "Specific behaviors" are the "absolute attributes" that are displayed by gifted children in various cultural and environmental settings. For example, a gifted Navajo child on an isolated reservation may exhibit a "high motivation to learn" differently than a White middle-class child in a suburban school (Frasier & Passow, 1994). Rating scales, checklists, and observation forms have been developed to better identify these specific behaviors.

## Screening and Identification Techniques

*If we are going to identify gifted and talented students through alternative methods and use unique or alternative strategies to teach them then it would be inappropriate to use the traditional strategies to evaluate those students. (Brown, cited in Gubbins, 1995)*

Perhaps equally as problematic as the difficulties surrounding a definition of giftedness are the identification instruments schools use to identify their gifted children. Although the use of more varied and authentic assessment tools is widely advocated, gifted children are often identified solely on their performance on intelligence or achievement tests, and if not solely on these tests, they are the most heavily weighted item. Therefore, high academic achievers, good test takers, and those from the majority population are identified. In addition to many criticisms about the value, validity, and appropriateness of standardized testing, is the charge of bias. Critics believe this bias is a major factor in the underrepresentation of minority, economically disadvantaged, and limited English proficient gifted students. Divergent and/or creative thinkers, whose abilities are not tested by standardized intelligence or achievement tests, and children with learning disabilities, who do not perform well on tests, are also underrepresented in gifted programs.

Although most in the field of gifted education do not advocate the elimination of these tests in the identification process, they support the use of multiple criteria measures which take into account the influence of race, culture, and socioeconomic status on behavior, and which identify students with creative thinking ability. Nontraditional identification strategies such as dynamic and authentic assessment have been developed to aid in the identification process. Dynamic assessment methods allow the student to interact with the examiner and benefit from the examiner's prompting and support, and authentic assessment involves observing the interaction of students in learning situations using checklists and observation forms. In addition to checklist and observation forms, other techniques include: biographical and autobiographical data; self, peer, or parent nominations; portfolio review; and developmental identification (Clark & Zimmerman, 1992; Frasier & Passow, 1994). Researchers suggest, however, reassessing the identification system on a continuous basis.

In the search for new ways to include all populations in gifted programs, a new construct of giftedness is recommended that reflects multicultural and multidimensional

perspectives, and the use of multiple criteria measures to more accurately identify all gifted and talented students.

## Special Populations

In our society, which is far from uniform in its beliefs and values, reaching consensus regarding who is gifted is complicated, and identifying potentially gifted students can be ambiguous at best. The differences in cultural norms, languages, ethnic backgrounds, levels of education and income, and other differences, raise a number of issues with respect to what talents are valued, identified, cultivated, and rewarded.

The challenges of identifying gifted students from underrepresented or special populations is not new. For decades, issues were raised concerning the identification of gifted children from lower socioeconomic classes. Since World War II and especially since school desegregation, there has been a recognition that the traditional approaches to identifying gifted children have been inadequate and that the considerable talent potential among minority and economically disadvantaged students has gone undeveloped (Frasier, Garcia, & Passow, 1995). Gifted children with disabling conditions are also underserved and underrepresented in gifted and talented programs (Willard-Holt, 1994). Therefore, identifying and serving gifted students from racial and ethnic minority groups, economically disadvantaged students, students with limited English proficiency, and students with disabilities was a priority in the Javits Gifted and Talented Students Education Act of 1988.

This section focuses on the reasons for the underrepresentation of students from special populations in gifted and talented programs and the proposals to deal with improving this problem.

### Cultural and Ethnic Groups

*People who live in the inner city, in the barrio, or on the reservation need to know that their children are gifted. There's too much raw ability going through the cracks. If a child we might lose had the ability to cure cancer but ends up joining a gang or dealing dope, that's a double loss to the country. (Ryan, 1983)*

Over the years, numerous writers have observed that gifted children can be found in every level of society and in every cultural and ethnic group (Clark, 1993; Ford, 1994; Renzulli, 1973; Torrance, 1977). Yet, identification of students with learning or physical disabilities and those from different cultural and ethnic groups has not been in balance with their numbers in the school population.

By far, underrepresentation of cultural and ethnic participation in programs for the gifted is most frequently attributed to biases in standardized testing (Bernal, 1980; Richert, 1987, 1991). Charges of test bias may stem from the test's content and format, performance differences among groups, and the purposes for which the test results are used. However, there is some agreement (Anastasi, 1988; Kamphaus, 1993; Reynolds & Kaiser, 1990; Thorndike & Lohman, 1990) that there is little or no substantiating evidence in the claims of bias in most well-constructed modern tests of intelligence.

Charges of bias extend beyond the test's content and format. A number of others criticize the fact that testing instruments and practices developed in Euro-American tradition are invalid measures for other minority group children (Boykin, 1986; Hilliard, 1991). In

any event, discussions and disagreements about test bias will continue as long as standardized tests remain a dominant part of assessment and identification.

Another area of concern regarding assessment and identification of children from cultural and ethnic groups is in the referral process. It has long been recognized that minority students are simply not referred for programs for the gifted to the same extent as majority students. Factors contributing to the under referral of these students are teacher attitude and the type of school these students are likely to attend (High & Udall, 1983). Research indicates that students, teachers, and school professionals continue to have low academic expectations for culturally and linguistically diverse students (Jones, 1988). With low expectations, teachers tend to overlook these students when making referrals for gifted program screening.

The traditional focus on deficiencies rather than on strengths is another reason for the low participation of students from cultural and ethnic groups in gifted programs. Since the 1950s and 1960s, with the emergence of school desegregation, civil rights activities, and the war on poverty, cultural deprivation became the driving theme for research. Identifying the knowledge, skill, and attitude deficiencies of ethnic students, and designing activities to eliminate or reduce them became the main focal points. This focus has made it difficult to recognize the strengths of these children and has been criticized because it diverted attention away from students who have achieved, despite the characteristics of cultural differences (Frasier, Garcia, & Passow, 1995).

### Physical and Learning Disabilities

*A major portion of their time is often spent in remediation or learning to circumvent the effects of the disability. This concentration on the child's disability may preclude the recognition and development of cognitive abilities. (Karnes & Johnson, 1991)*

Identification of students with specific physical disabilities can be problematic. Children whose speech and language is impaired cannot respond to tests requiring verbal responses. Children with limited mobility may be unable to take nonverbal or "performance" tests requiring hand manipulation. In addition, limited life experiences due to impaired mobility may artificially lower scores. Another problem is that gifted children try to compensate for their weaknesses, and children with disabilities often hide special abilities in order to fit in. This combination may cause them to appear closer to average in both areas (Hemmings, 1985), and be overlooked for placement in gifted programs.

Problems inherent in the identification of gifted students with learning disabilities can be grouped into four categories (Whitmore & Maker, 1985). The first has to do with stereotypical expectations about gifted children. Although most of the old images of the gifted child as a weakling wearing thick glasses are gone, stereotypes remain, such as, the gifted are always mature, self-directed, and well behaved in the regular classroom.

The second category includes developmental delays. Some disabling conditions can produce delays in specific developmental abilities that are often used as indicators of giftedness. While developmental delays may hinder intellectual aptitude, they are not necessarily indicators of cognitive inability.

The third obstacle to identification includes incomplete information about the child which limits the view of the child's potential. Educators are usually not provided with detailed information about the characteristics of high ability students with learning disabilities. This may cause the classroom teacher to concentrate on disruptive behaviors

and learning deficits instead of the child's talents (Cramond, 1995; Reis, Neu, & McGuire, 1995).

The last category of obstacles to identification relates to existing programs for students with learning disabilities. In programs for children with learning disabilities, students are rarely provided with opportunities to display their talents. There is little information about enrichment programming for bright students with learning disabilities.

The problem of identification is further compounded by the absence of procedures to locate these students within most public schools. The identification of high ability students with learning disabilities is a rarity in school professional development programs, therefore, there is a general lack of awareness regarding the phenomenon of gifted students with learning disabilities (Boodoo, Bradley, Frontera, Pitts, & Wright, 1989).

## Assessment and Identification Issues

### Cultural and Ethnic Groups

*The use of multiple criteria and nontraditional measures figures prominently in many of the proposals to improve the identification and consequent representation of gifted students from minority populations. (Frasier, Garcia, & Passow, 1995)*

Assessment issues related to the identification of gifted children from different cultural and ethnic groups highlight the difficulties with traditional methods in recognizing the talents of students from diverse groups (Callahan & McIntire, 1994). Various researchers have offered a range of possible ways of increasing effective identification procedures. They include: developing new data matrices; renorming or redesigning standardized tests; creating more authentic evaluation procedures such as portfolios or performance assessment; using objective and subjective data from multiple sources; extending the range of persons in the referral and nomination process, which involves creating enriched learning opportunities so students can demonstrate their abilities; adjusting cutoff scores and analyzing subtest scores differently; and developing culture-specific checklists and rating scales (Frasier, Garcia, & Passow, 1995; Lidz, 1991).

There are many difficulties inherent in these proposals. There are claims that some of these nontraditional, nondiscriminatory forms of assessment may actually provide invalid information (Hilliard, 1991). Others argue that "doctoring" measurement techniques by adding points stigmatizes these children, while failing to recognize their many gifts (Bernal, 1980). Lastly, summing scores from different tests, scales, and checklists is considered statistically inappropriate (Pendarvis, Howley, & Howley, 1990).

The long-standing debates related to the identification of talent potential among this population will, no doubt, continue for some time. There is no single new assessment procedure that will fix all the problems associated with assessment and identification of these children. Among the areas that research can profitably address are in the development of a consensus on the construct of giftedness, and in the exploration of the value and validity of data from multiple sources.

Clearly, new models for identification that will include populations that have not been adequately identified are needed (Frasier & Passow, 1994). The promise is that educators will better understand how to identify and nurture talent potential among all learners.



## Students With Physical and Learning Disabilities

*Intellectually gifted individuals with specific learning disabilities are the most misjudged, misunderstood, and neglected segment of the student population and the community. (Whitmore & Maker, 1995)*

There are three areas educators can address which relate to recognizing talent in students with physical and learning disabilities. They include: the difficulty in expressing and recognizing talent, the impact of the classroom atmosphere, and integration into the regular classroom (Cramond, 1995; Reis, Neu, & McGuire, 1995; Willard-Holt, 1994).

First, there are a variety of measures which may be used to assess the cognitive abilities of students with physical limitations. Standardized tests include the *Columbia Maturity Test*, *Detroit Test of Learning Aptitude-2*, and the *Stanford-Binet*—to name just a few. Certain adaptations and modifications may be necessary, not to make the test easier, but to make it possible for students to demonstrate their abilities.

The difficulty in recognizing indicators of giftedness may be reduced with informal measures such as observational checklists of characteristics of gifted children and those specific to gifted students with various disabilities. Recognizing and nurturing talents in children who are unable to speak is extremely difficult. These children cannot explain their thinking processes, respond to or ask questions, or display leadership abilities in conventional ways. They must rely on others or on mechanical devices to interpret for them.

The second area of focus involves the classroom. The classroom atmosphere, its structure, and the instructional activities offered greatly impact the intellectual development of gifted students with physical disabilities. A positive atmosphere, where students with physical abilities are respected, facilitates their development. Classes that are structured for individualization, advanced work, and an emphasis on achievement tend to be the best suited for these students. Hands-on activities such as science experiments and field trips are valuable in building tactile experiences not often encountered by students with physical disabilities.

The last area involves integration into the regular classroom. Gifted students with physical disabilities need a mainstreamed setting with opportunities to interact with nondisabled peers. Spending more time with nondisabled students helps them to learn adaptive behaviors more quickly. They also should be given access to gifted programs in their schools.

In addition, there are various measures to enhance the identification of students with specific learning disabilities other than those which are physical. A substantial amount has been published about various traits or characteristics which hamper the identification of high ability students with learning disabilities. Practitioners interested in this population have also identified positive characteristics which can aid educators and parents in recognizing the talents of these students (Reis, Neu, & McGuire, 1995).

These lists of characteristics may help rid the stereotypes which still remain about the gifted child, and allow educators to look beyond disruptive behaviors and learning deficits, toward the talents the child may have. In order to do this, however, professional development programs are imperative for classroom teachers who often find it difficult to recognize giftedness in one area when the same student is having difficulties in other areas.

Finally, instructional strategies which avoid drill and practice, but provide special enrichment activities which develop creative abilities are a few of the many recommendations offered by experts interested in high ability students with learning disabilities. These recommendations are consistent with the overall recommendations offered by experts in the field of gifted and talented education (Baum, 1984). The key to addressing students with disabilities lies in getting beyond the specific disability while allowing the cognitive talents to blossom.

## Program Options, Impact, and Outcomes

Advocates of gifted and talented students have long argued that a student's educational program should be determined by his or her needs, abilities, and interests, and that any single educational experience will not benefit all students equally. There is no consensus about the most appropriate delivery system for gifted and talented students, but experts agree that there are key components inherent in all successful programs which differentiate curriculum and instruction for gifted and talented students.

An overview of curricular and instructional differentiation, program options for gifted students, including the components of exemplary programs, the impact of these programs on gifted and nongifted students, and the academic outcomes of students in programs for the gifted and talented follows.

### Curricular and Instructional Differentiation

*The success of education depends on adapting teaching to individual differences among learners. (Yuezheng in 4th Century B.C. Chinese treatise)*

It is widely accepted among educators of gifted and talented students that the greatest problems facing high ability students are the lack of challenge in the regular curriculum and previous mastery of content and skills. This repetitious work can lead to boredom, discipline problems, inattentiveness, and failure to develop organized study patterns. One of the ways teachers can accommodate for the specific needs and abilities of bright students is to *differentiate the curriculum*, a strategy which provides an optimal match between learner capacity and level of experiences. The problem is that many classroom teachers have neither the background, nor the experience necessary to differentiate the curriculum. In fact, a recent study shows that "across all five subject areas, the target gifted and talented students experienced no instructional or curricular differentiation in 84% of the activities in which they participated" (Westberg, Archambault, Dobyms, & Salvin, 1993, p. 3).

The following outlines methods which are interwoven and work best when combined to provide differentiation in curricular content, process, and products:

**Curriculum Compacting.** The purpose of curriculum compacting is to accommodate the faster pace at which gifted students learn, while ensuring that their basic knowledge on any given topic area has been mastered. Teachers pretest to see if the student already knows the material or to determine to what extent additional exercises are needed to ensure mastery. Once the teacher is satisfied that the basic concepts have been mastered, advanced-level enrichment activities and more challenging options are provided in that curriculum area (Reis et al., 1993).

**Grouping.** Several studies suggest that grouping according to ability is beneficial in meeting the needs of gifted students (Kulik, 1992; Rogers, 1991). Five grouping patterns can be used singly or in combination in classrooms with gifted students. These options are interest groups, cluster groups (i.e., placing top students within a grade level in one group), multi-aged classes, grade skipping, and telescoping (a method whereby students can have several academic years' worth of work "telescoped" into a much shorter period of time).

**Self-Selected Independent Study.** Gifted students are provided with the freedom to select and study in-depth topics of interest to them through the use of learning centers and interest development centers. Students need to be able to extend their learning environment beyond the classroom by having access to the library, computer facilities, school specialists, and resource personnel. The teacher provides the students with the skills necessary for self-directed independent study

**Acceleration.** Opportunities for exposure to more advanced level content are created by decreasing the time spent on routine activities. There are several acceleration-based options which may be offered to gifted students as a group or on an individual basis in order to achieve this:

- Early admission into elementary school
- Nongraded classrooms
- Curriculum compacting
- Grade skipping
- Telescoping
- Subject acceleration
- Enrollment in advanced placement and correspondence courses
- Taking courses for college credit

**Higher Cognitive Processes.** Since gifted students have the ability to comprehend at a greater depth and complexity than other students, there needs to be added emphasis on higher levels of thinking, such as Bloom's application, analysis, synthesis, and evaluation. Through direct teaching of analytical, organizational, critical and creative thinking skills, or through embedding these skills in content, teachers can provide high ability students with opportunities to work with more complex content. For example, by teaching the methods of brainstorming, creative problem solving, and decision making, teachers can give students many of the skills needed for finding and solving real world problems. Various competitions such as Odyssey of the Mind, Future Problem Solving, Science Olympiad, and the Math League can give students additional involvement with higher order thinking skills.

**Questioning Strategies.** One method for facilitating both deeper and broader involvement with content is through skillful questioning. Research on teacher questioning shows that emphasis on higher cognitive questions has a positive effect for students of average and above average ability. There are four types of questions teachers could ask to broaden content involvement:

- Questions calling for variety. "What else might happen?"
- Questions calling for clarification or extension. "Please explain more about that idea."
- Questions calling for reasons or support for ideas. "Tell us how you know that."

- Questions calling for focusing on concepts. "What have been some of the consequences of?" (Taba, 1966)

**Wait Time.** Students may need more time just to process complex questions, and to formulate their original responses. Longer wait times lead to more active class participation by a larger percentage of students, as well as an increase in the quality of the participation. Pre-response wait time (a pause after a question has been asked) allows the student to consider the question and to develop an original response, and post-response time (a pause after an answer has been given) allows time for students to elaborate and supply evidence in support of their answer (Westberg, Archambault, Dobyms, & Salvin, 1993).

### Program Options

*Unless the special abilities of gifted and talented students are recognized and developed during their elementary years, much of their special potential for contributing to the national interest is likely to be lost. (Javits Act, 1988)*

Although there are several different program designs for gifted and talented students, exemplary programs are those which have strong administrative support, an accepting atmosphere, clear and frequent communication, a differentiated curriculum which is challenging, and a commitment to serving students from traditionally underrepresented populations (Delcourt & Evans, 1994). Below is a list of options to consider when designing and developing programming options for students with high abilities:

**Enrichment in the Regular Classroom/Within-Class Program.** A differentiated program of study for the gifted is provided by the classroom teacher within the regular classroom without assistance from an outside resource or a consultant teacher.

**Pull-Out Program/Resource Room.** Gifted students leave the classroom on a regular basis for differentiated instruction provided by a specially trained teacher.

**Separate Class.** Gifted students are grouped together for most of the day and receive differentiated instruction from a specially trained teacher.

**Special School.** Gifted students receive differentiated instruction in a specialized school established for that purpose.

**Consultant-Teacher Program.** A specially trained teacher serves as a consultant to the classroom teacher in providing differentiated instruction. The consultant teacher also provides extra materials and teaches small groups of students in the regular classroom.

**Interest Classes or Enrichment Clusters.** Students volunteer for challenging classes on topics beyond or outside the curriculum. Teachers and community resource persons are involved in teaching the classes or clusters.

**Magnet School.** A school is established that focuses on specific areas (e.g., foreign languages, advanced math). Students with special interests are encouraged to volunteer for such programs even if they are outside the students' own neighborhood school.

**Independent Study Program.** Differentiated instruction consists of independent study projects supervised by a qualified teacher or mentor.

**Saturday or Summer Program.** Enrichment or fast-paced programs that attract gifted students in art, mathematics, or general programs.

**Community Mentor Program.** Gifted students interact on an individual basis with selected members of the community for an extended time period on a topic of special interest to the student. (Gallagher & Gallagher, 1994)

### **Affect on Self-concept, Motivation, and Achievement**

*Again and again, it has been noticed that the intellect in America is resented as a kind of excellence, as a claim to distinction, as a challenge to egalitarianism, as a quality which almost certainly deprives a man or woman of the common touch. (Hofstadter, 1970)*

Recent school budget crises and debates about student grouping practices have caused many teachers, parents, and administrators to ask about the impact of programs on gifted and talented children. A recent study (Delcourt, Loyd, Cornell, & Goldberg, 1994) was conducted to evaluate the effects of programming arrangements on student learning outcomes. Since the most frequently used classroom arrangements for gifted and talented students are Within-Class, Pull-Out, Separate Class, and Special School, researchers investigated these program types. For comparison, researchers looked at gifted students at schools without special services and students not identified as gifted.

### **Program Impact**

- Students who are grouped homogeneously (Special Schools and Separate Classes) feel an increase in competition, thereby lowering their self-perceptions of their scholastic abilities.
- Students in Special Schools are more likely to view their classrooms as being student-centered than their nongifted peers and peers in other gifted programs.
- Existence of programs for the gifted do not produce any measurably harmful effects on the academic achievement of nongifted students in schools with identified students.
- Students in Special Schools had more positive attitudes about learning than students in all other settings, both gifted and nongifted. (Delcourt, Loyd, Cornell, & Goldberg, 1994)

### **Academic Outcomes**

- Students in Special School and Separate Classroom programs scored *significantly* higher than gifted students in other program options.
- Students in Pull-Out, Separate Class, and Special School programs showed higher achievement than gifted students who were not in programs.
- Students in Pull-Out, Separate Class, and Special School programs showed higher achievement, in most cases, than those from Within-Class programs and nongifted students.
- In the areas of Reading Comprehension, Science, and Social Studies, students from Special Schools, Separate Class, and Pull-Out programs had the highest achievement scores, often significantly higher than their peers

from the Within-Class program, gifted students without services, and the nongifted students. (Delcourt, Loyd, Cornell, & Goldberg, 1994)

In summary, there are effective programs around the country which challenge students creatively and intellectually, but many students with outstanding talents do not perform at high enough levels. There are few accommodations made for them in the regular classroom, despite evidence that they have mastered significant portions of the regular curriculum. If success can be gauged by high academic performance and satisfaction with oneself and one's learning environment, then the concept of specific programming for the gifted is not only valid, but necessary so that students can develop their special talents and "realize their contribution to self and society" (Marland Report, 1971, p. ix).

## Professional Development

In a recent study (Archambault et al., 1993) of instructional and curricular practices used with gifted students in third and fourth grade regular classrooms, 61% of the responding teachers in the public school sample and 53% of the private school sample reported that they had received no staff development in the area of gifted education. Yet, over 70% of the teachers had taught for more than ten years. This may help to explain why the responding teachers made only minor modifications to meet the needs of the gifted and talented students in their classrooms. Eighty-four percent of activities for gifted students were the same as those made for the whole class in mathematics, reading, social studies, science, and writing (Westberg, Archambault, Dobyms, & Salvin, 1993). Educators agree that professional development in the area of gifted education must be given a high priority.

### Professional Development Plan

*Teachers who have had more training . . . are implementing more modification strategies in the classrooms. (Westberg, cited in Gubbins, 1995)*

Many researchers had the opportunity to work directly with teachers, providing them with strategies for working with gifted and talented students within their regular classrooms. Teachers were shown how to work with advanced materials and use complex teaching strategies with a variety of students. Several projects took place over extended periods of time, two years in some cases. When asked about improving the effectiveness of professional development experiences, researchers offered several key components of effective professional development programs that focused on helping teachers meet the needs of their bright students:

**Increase both the quantity and quality of training for teachers.** There is a relationship between the quantity and quality of teacher training activities and teachers' actual practice in the classroom. Teachers who have had more training either at a district level, local level, even more so if they have had training at the college or university level, tend to implement more modification techniques in the classroom. Similarly, teachers who have actually been shown how to make effective modifications are more likely to implement successful differentiated strategies in the classroom. Therefore, differentiation strategies for academic diversity should be required instruction for students at the undergraduate level preparing to become teachers. This sends a clear message to future teachers that they need to understand student variety and address this variety early on in the classroom with hands-on experience, using modification strategies that will enable

them to address the varying needs and levels of students that will make up their classrooms. (Westberg, cited in Gubbins, 1995)

For veteran teachers, more comprehensive professional development opportunities are needed to learn *how* to provide more challenges and choices for their gifted students. Simply telling teachers to make instructional and curricular modifications is not enough. Teachers need the time and the resources to appropriately program for all their students, including those who are gifted and talented. Trainers or coaches who work directly with the teachers in the classrooms provide teachers with the necessary resources and support to accomplish this goal.

**Coach or collaborate with other educators.** So much of teacher training in the past has been on prescription and didactic teaching strategies (Leppien, cited in Gubbins, 1995). "Trainers" need to work with teachers to move the model of teaching to engage students in exploration, and to ask teachers to look at students differently in terms of interests, academic abilities, and their learning style preferences when planning for their instruction. This also involves assisting teachers in how to observe their students and assess the learning opportunities for which they are best suited. This tremendous change involves teachers working collaboratively with "coaches" and other educators to receive immediate feedback and direction (Purcell, cited in Gubbins, 1995). When teachers and coaches can establish a personal, non-threatening relationship—more positive gains are possible. Teachers should view the coaching component as a collaboration of educators, and not feel as if the coaches are in the classrooms in a superior role pointing out what the teachers are doing wrong. Collaboration implies that each will learn from the other to provide the most appropriate and challenging activities for all students. Additionally, working in a network, whereby teachers can communicate with each other, provides a "feedback loop" so they can learn from each other's growth and expertise, and obtain guidance and support whenever necessary.

**Provide time and funding to implement change effectively.** Educators see time as perhaps the most critical area of staff development. To make changes of this magnitude, both in the way teachers look at students and in the way teachers see their role in the classroom, requires a great deal of time. A "pitch and ditch" approach (where experts come into the schools, give their pitch about classroom differentiation strategies, and leave the building expecting change to systematically evolve) will not affect the intended change (Tomlinson, cited in Gubbins, 1995). Some have suggested that three or four years of collaboration between educators is barely enough time to make an impact.

This collaborative approach to professional development requires a high priority in the area of funding, particularly if the training is going to be long-range. School districts that are committed to making this kind of change in instruction must attach funding which will allow for coaches or trainers to work directly with teachers in the classrooms over extended periods of time.

### **Challenging and Appropriate Learning Options**

*Gifted children are probably our most important national resource, and natural resource. We should view our gifted as we would any other natural resource, as something to value and as something that's going to be essential for our future . . . . People don't realize that they're a resource that has to be developed, that you don't just all of a sudden become gifted without any kind of assistance, without any*

*kind of education. And so what I think we have to do is value and teach these kids and help them develop into the national resource we're going to need to be competitive in the future. (Sternberg, cited in Gubbins, 1995)*

Teachers involved in professional development in the area of curriculum modification are coached or trained to provide challenging, high-level learning opportunities for all students (Reis et al., 1993; Renzulli, 1995; Sheffield, 1994). The following are strategies that were used by teachers and their coaches in regular classrooms throughout the country:

**Pre-assess students to establish readiness levels.** Pre-assessing where children are is critical in providing them with challenging opportunities (Tomlinson, cited in Gubbins, 1995). It is too easy to assume that all students are at the same level in any subject area. Pre-assessing allows teachers to make adjustments for their students' readiness levels before a unit begins. There are students who will know most of the material before it is taught, there will be others who know some of the material, and still others who will know little, if anything, about the material. Therefore, these students need a variety of lessons and activities at different degrees of difficulty and depth in order to motivate and challenge them. Teachers can use paper/pencil assessments, journals, portfolios, or talk to last year's teachers to get a sense of where to begin with their students. This permits students who have mastered much of the material to work on other activities or begin projects in that subject area which allow for more in-depth study.

**Provide opportunities for interest-based learning.** Students respond positively when they are allowed to pursue some of their own interests. Pre-assessment helps teachers find the time for their students to self-select topics, especially bright students who may know much of the material before it is presented, and who work at a much faster rate than many of their peers. Students may choose topics that are of particular interest to them or they may select from a group of enrichment activities that are centered around a required unit (Burns, cited in Gubbins, 1995). Offering choice to students results in strong commitment and high motivation for their work.

**Provide students with flexibility and choice.** Teachers can provide students with options that go beyond self-selected activities. For instance, teachers may allow their students to take a test or do a project in its place. Students may choose to do a project alone or with a partner or group of students. On a test, they may have several questions or activities from which to choose so that they may select some options that highlight their strengths (i.e., analytical, creative, or practical reasoning). In this way students see that their strengths are being valued (Sternberg, cited in Gubbins, 1995). For example, if students were studying the period in history involving the Civil War they might have the following questions from which to choose:

1. What conclusions can you make regarding the reasons or events that led both sides (North and South) to go to war? (*analytical*)
2. Based on your understanding of the events leading to the Civil War, how could the war have been avoided? How would you have solved the conflict if you were alive in the 1860s? (*creative*)
3. How would you solve the conflict in Bosnia today if you were a member of the United Nations negotiating team? (*practical*)



Another area of flexibility is in the learning environment. Students need to be able to extend their learning beyond the classroom by having access to the library, computer facilities, school specialists, and other resource personnel, including members of the community when working on research reports or projects:

**Provide opportunities for first-hand inquiry.** Students should have the chance to investigate real world problems and present their solutions to an authentic audience (Brandwein, 1995; Renzulli, 1994). They can investigate problems within their school and local communities and present their findings to members of that community. Projects of this nature call for analysis, synthesis, application, and evaluation, and require students to seek only relevant information that relates to their product or service. By providing students with guidance in how professionals in a field pursue knowledge, they are better able to investigate their own topic of interest. Teachers can help students access this knowledge by using "How To" books. These books provide a lot of valuable professional information that is understandable by students, who can do high-level work while learning the craft of a particular field of their choice. For instance, if a student has a strong interest in history, then he/she must begin by looking at techniques used by historians. This methodology can be found in certain kinds of guidebooks or manuals that, unfortunately, are most likely available in college libraries. Because these books are not ordinarily found in elementary or high school libraries, does not mean that highly able students cannot make appropriate use of at least selected parts of the material. With the book entitled *Understanding History: A Primer of Historical Method* (Gottschalk, 1969), the student can access information about how to actually behave as an historian rather than merely learning more about the accumulated facts of history. The student interested in investigating a specific historical topic or problem would ask four types of questions that an historian would ask:

Where? What area of the world do I want to investigate?  
 Who? What persons am I interested in?  
 When? What period of the past do I wish to study?  
 What? What spheres of human interest concern me most? (Gottschalk, 1969, pp. 62-63)

The biggest benefit in having students become first hand inquirers is that they learn about the rigors and challenges of the creative producer and begin to think, feel, and do like creative producers (Renzulli, 1977).

Teachers are the key to success in a vision for excellent schools. They must be prepared to work with advanced materials and use several teaching strategies with a variety of students. School districts must encourage the kind of teacher training necessary to improve educational opportunities for all students, including those with outstanding talents.

## **Policy, Program Organization, and Management**

In the Marland report (1971), the gifted and talented were designated as a population with special needs. This resulted in proactive involvement of the federal government in gifted education for the first time.

Another important event in the history of gifted education was the passage of the Education for All Handicapped Children Act of 1975 (Public Law 94-142). Although

"gifted and talented" was not a category in the law, at least 17 states have since included the gifted as an area of exceptionality and have applied many of the same standards and procedures for students with disabilities.

In general, it is state level policy that drives and guides local education policy and programs, however, federal policy has a great impact on the development of state and local policies. In the two decades since the Marland Report, every state has developed a policy statement regarding education of the gifted.

### State Policy Elements

*A mandate is a statement of a desired goal on the part of the state even if that goal is not realized. The state always has more policies than funds and must arrange them in a type of priority. (Coleman & Gallagher, 1992)*

Many states have policy statements dealing with the education of the gifted but these statements do not always hold up very well when there are pressures to place educational priorities elsewhere. States policies which contain clear and specific language about their gifted programs are the most effective in providing service to their gifted populations. State-level policy is a crucial element in local educational planning, since local school officials often look to state policy for guidance as well as support when planning and providing programs and services for their gifted and talented students. The following overview is based on the work of Passow and Rudnitski (1993), and it provides several essential elements and some guidelines for preparing an effective policy statement:

**Philosophy.** A state's policy statement should provide clear guidance for the local district in expressing its basic beliefs and commitments regarding talent and talent development.

**Definition of Gifted and Talented.** The definition should reflect the nature and diversity of human talents and abilities specified in the broader Marland and Javits definitions; take into account environmental impact and developmental differences; recognize that all components of giftedness might be nurtured; and provide a clear and effective foundation for practical instructional planning.

**Identification Methods.** Guidelines should be based on sound current research and should begin the process with a broad talent pool, one based on valid instruments and procedures; involve all staff members in the initial identification steps; search for multiple talents to be nurtured; use multiple procedures in identifying gifted students; stress potential at early stages and actual performance at later ages; provide opportunities for students, that are ongoing, to demonstrate potential through performance and products; and use procedures and instruments which aim at seeking out and identifying diverse talents of students from various ethnic, linguistic, economic, and cultural groups (Ford, 1994, 1995).

**Program Requirements or Recommendations.** An ideal policy on differentiated curriculum and instruction should describe goals for each student according to his/her area of talent; deal with curriculum content, scope and sequence, articulation, and integration as essential ingredients of curriculum design; provide flexibility for student growth and choice; plan for the use of new technologies; design evaluation procedures; and plan for incorporating the learning opportunities in the community.

**Teacher Certification and Preparation.** State policies should recommend and support staff development programs that provide all teachers with knowledge about the needs of gifted students; support the involvement of a variety of teachers who can serve as mentors; support staff development experiences for administrators so that they fill leadership roles in programs for gifted and talented students.

**Funding.** Programs for the gifted have to compete for limited resources. State policies should express a firm conviction that gifted education is a high priority and programs require funding; commit the state to some level of funding; and provide financial support for statewide, state directed programs such as summer residential programs, governor's schools, professional conferences, and staff development.

**Monitoring Standards.** State policies should provide local districts guidance for undertaking more meaningful assessment that will lead to improved learning opportunities for gifted and talented students; and provide technical expertise for refining local districts' skills and competence for designing and implementing evaluation and assessment procedures.

Having achieved recognition in state policies, whether the policies are mandated or discretionary, educators and advocates of education for gifted and talented students can build on and strengthen state policies by incorporating the new understandings, insights, and knowledge of talent potential into those policies. States can improve their policies by taking greater leadership in curriculum design and development so that local schools can join with the state in upgrading the quality of learning in general.

### Current Status of Programs

*Programs for the gifted are usually the most expendable ones when budgetary considerations force cutbacks in services to children. (Tannenbaum, 1979)*

The fact that every state in the United States has developed its own policy statement on gifted education demonstrates progress in the field over the past two decades. Conflicting opinions, however, exist among researchers and experts in the field regarding the current status of programs for gifted students. There are those who believe that there is power and energy building in the field. They base this belief on the acknowledgment of new, multiple forms of intelligence; the use and preference for developmental theories of giftedness; identification based on performance rather than on tests; a new focus on excellence rather than elitism; and an emphasis on collaboration rather than top down administrative models for programs.

A smaller, but increasing number of researchers, are more cautious in their outlook about the future of gifted education. They believe that the recent national economic decline, misconceptions about the special needs of gifted students, and the reform efforts, specifically the grouping issue, are causing a reduction in programs at the local level.

Purcell's (1994) study on the status of state programs for high ability students examined the condition of programs in states with and without mandates. The findings did not support the claim that the field has gathered momentum in the last decade. Although there has been an increase in the number of scholarly research publications about gifted students and increased enrollment in courses and at national conferences on gifted and talented students, the majority of respondents in the study did not report a new wave of interest in the education of gifted and talented students at the local level.

What the study indicated is that there is an association between state mandates and program growth and stability. Respondents from states with mandates indicated that mandates, regardless of state economic health, were the main reason for program growth and stability. The decline of state and local financial support was the primary reason associated with programs experiencing jeopardy.

On the other hand, respondents in states without mandates credited the stability and growth of their programs to support from advocacy efforts. In addition, they attributed the jeopardy their programs experienced to the decline of funding at the state and local level.

The consistency with which over 1600 respondents associated funding issues with program jeopardy casts doubt on the theories which claim that programs for gifted and talented students are being eliminated because of the reform effort. It seems reasonable to conclude that the national reduction in programs for the gifted is, for the most part, the result of a weakened economy and not the result of changing educational philosophies.

### Program Organization

*It is very clear that the academic effects of a variety of long and short-term grouping options for both the purposes of enrichment and acceleration are extremely beneficial for students who are academically or intellectually gifted or talented. (Rogers, 1991)*

The recent debate on ability grouping, which has actually been going on for the last six decades, has raised a number of educational issues for teachers and administrators. Many reformers have argued for the elimination of most forms of ability grouping, suggesting that grouping be replaced by mixed-ability classrooms in which whole group instruction and cooperative learning are the major instructional delivery systems.

Some reformers who argue against ability grouping believe that restructuring should include the elimination of accelerated classes and enrichment programs for the gifted and talented. However, the research does not appear to have been searched comprehensively. There is a literature base of over 300 studies on cooperative learning (Johnson, Johnson, & Maruyama, 1983; Robinson, 1991; Slavin, 1984) and over 700 studies on ability grouping (Kulik & Kulik, 1982). There have also been 13 syntheses of research, all of which have analyzed parts of these literature bases.

Two new objective, scientific techniques, meta-analyses and best-evidence syntheses, have been developed in recent years. By analyzing 13 syntheses together, Rogers (1991) has come up with a sound understanding of what the research really has to say about grouping by ability. In addition, Kulik (1992) has used statistical methods to organize and summarize the literature on grouping, and has offered a clearer understanding of the extensive research base.

The results of these extensive and exhaustive syntheses of hundreds of studies on ability grouping indicate that gifted and talented students profit greatly from accelerated classes and enriched curriculum (Rogers, 1991). The researchers suggest that gifted and talented students should spend the majority of their school day with others of similar abilities and interests, where they are given various forms of enrichment that extend the regular curriculum and a variety of appropriate acceleration-based options. In the absence of full-time gifted programs, students should be offered cluster grouping in which a small number of gifted students of similar ability are grouped within a heterogeneous classroom. These analyses also suggest that mixed-ability cooperative learning be used sparingly for gifted students.

An interesting aspect of the examination results is that the benefits of ability grouping were slight from programs that offered common curricular experiences for all ability groups. Grouping programs that entailed more substantial adjustment of curriculum to ability had clear positive effects on students (Kulik, 1992). In typical evaluation studies, gifted and talented students from accelerated classes outperformed non-accelerates of the same age and IQ by almost one full year on achievement tests.

Advocates of programs for gifted and talented students feel that if schools eliminate ability grouping bright, average, and slow students would suffer academically (Kulik, 1992). The damage would be greatest, however, if schools eliminated enriched and accelerated classes for their brightest learners, since achievement levels of bright students fall dramatically when they are required to do routine work at a routine pace (Kulik, cited in Gubbins, 1995).

### Program Evaluation

*Gifted and talented practitioners new to evaluation should seek the assistance of an evaluator to act as coach, assisting in the design and execution of an evaluation. (Fetterman, 1993)*

The health of a gifted and talented program requires both self-examination and external evaluation. Routine self-examination allows early detection of problems and confirms whether or not the program is sound. By detecting and thus helping to prevent program deterioration, self-examination and external evaluation promote the health of gifted and talented programs.

This section highlights some of the common sense ways of reflecting upon one's program achievements and shortcomings, and examines the value of an external component in the reflective process (Fetterman, 1993).

The team approach is the most common and often most effective method of conducting self or external evaluations. A typical self-evaluation team is composed of teachers, counselors, administrators, parents, and a student. Local experts, board members, and gifted and talented program officials can also be recruited whenever possible. The team develops an evaluation plan based on input from key stakeholders in the school and community. Evaluation tasks are divided and distributed to appropriate team members, who then execute them. Some of the tasks include interviews, observations, and reviews of records.

A typical approach to program evaluation involves:

1. Determining goals and outcomes.
2. Describing the processes required to accomplish goals and objectives.
3. Determining the immediate, short-term effects of the program.
4. Determining the long-term effects of the program.

A conscientious effort should be made to determine the goals of the specific gifted and talented program. The goals should be realistic and measurable. For example, a district's goals may include having students perform at two grade levels beyond their chronological peers. Whatever the goal, it is important for the evaluators to recognize the program's target outcomes before undertaking an evaluation of that program.

The second step is to describe what the program is doing to accomplish its stated objectives. This requires monitoring program operations, and ongoing discussions with

administrators, teachers, and students. This helps administrators, teachers, and students keep on their intended course and accomplish the objectives of the program.

The third step is to determine the program's immediate or direct impact. In other words, are gifted and talented students performing at two grade levels beyond their chronological peers? This is the stage that includes interviews with administrators, teachers, students, and parents, observations of administrative and classroom behavior, and data such as past evaluation reports, standardized test results, student and program portfolios, and local newspaper articles. The evaluator must be sure to select an accurate and a valid measure to determine whether a goal has been achieved. Measures can be scores on achievement tests, a dramatic production, or community service records.

The final step is to consider the program's long-term or ultimate effect. Has the gifted and talented program contributed to the academic standing of the school in the community, the state, and the nation? Are more gifted and talented students entering and completing undergraduate and graduate degree programs? Are more gifted and talented program graduates making productive business, medical, or scientific contributions? Few programs maintain comprehensive longitudinal data, however, such data provide one of the best and least expensive sources of useful impact information.

Self-evaluations help maintain a program's health on a daily basis; expert external evaluation is essential to an in-depth and objective understanding. It offers an "objective eye" rarely found inside a program. External evaluators can help identify goals and objectives at the onset of a program and can help establish standards, benchmarks, and milestones with which to measure student, teacher, administrator, and program performance. They can provide feedback about progress toward those goals and inform policy makers about the impact of a program in a credible way. External evaluation plays an invaluable role in refining healthy programs and has significant impact in future funding and program concerns.

Finally, interim and final reports are essential. A written record puts findings in black and white for all parties to discuss. It allows participants to return to it to measure progress. A final evaluation is likely to have an immediate impact on the program studied, therefore, it should contain clear and concise language. All evaluations have a focal point which the evaluator should make explicit. The evaluator should determine whether the focal point is directly relevant to the specific problems faced by the program at the time as well as to generic program concerns.

Evaluation is essential to learn how a gifted and talented program works, how effective the program is, and how to raise standards of quality. Self-evaluation should be a routine part of daily program activity where students, teachers, administrators, and parents are encouraged to conduct informal self-appraisals on a daily or weekly basis. In addition, external and independent evaluations complement self-evaluations by ensuring a more objective and credible appraisal. Together, these approaches play an essential part in the development, maintenance, and understanding of educational programs for our gifted and talented students.

## Conclusion

The research conducted by The National Research Center on the Gifted and Talented has addressed critical issues in the field. The research agenda was established using the results of a national survey of over 5,000 people throughout the country

(Renzulli, Reid, & Gubbins, undated). Major topics of interest were pursued, and now we have a comprehensive research base on identifying and serving students with high abilities who, in the past, have been underrepresented in programs for the gifted and talented. The enactment of the Jacob K. Javits Gifted and Talented Students Education Act of 1988 made it possible to assemble research teams across the country to investigate critical issues using quantitative and qualitative methodologies.

The findings and themes that have emerged across studies have been intertwined with the historical and contemporary research and practices to provide readers with a global perspective on developing gifts and talents of all America's students.

Readers interested in the abstracts, and guidelines, recommendations, or conclusions for several of the NRC/GT studies and commissioned papers can peruse the documents in Appendix A: Designing and Developing Programs and Services for Students With High Abilities. The NRC/GT Resource Matrix of Publications displays a topical listing of research studies and commissioned papers.

## References

- Anastasi, A. (1988). *Psychological testing* (6th ed.). New York: Macmillan.
- Archambault, F. X., Jr., Westberg, K. L., Brown, S. W., Hallmark, B. W., Emmons, C. L., & Zhang, W. (1993). *Regular classroom practices with gifted students: Results of a national survey of classroom teachers*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.
- Baum, S. (1984). Meeting the needs of the learning disabled gifted students. *Roeper Review*, 7, 16-19.
- Bernal, E. M. (1980). *Methods of identifying gifted minority students*. (ERIC Report 72 ed.). Princeton, NJ: Educational Testing Service.
- Boodoo, G. M., Bradley, C. L., Frontera, R. L., Pitts, J. R., & Wright, L. P. (1989). A survey of procedures used for identifying gifted learning disabled children. *Gifted Child Quarterly*, 33(3), 110-114.
- Boykin, A. (1986). The triple quandary and the schooling of Afro-American children. In U. Neisser (Ed.), *The school of achievement of minority children* (pp. 57-92). New York: New Perspectives.
- Brandwein, P. F. (1995). *Science talent in the young expressed within ecologies of achievement*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.
- Callahan, C. M., & McIntire, J. A. (1994). *Identifying outstanding talent in American Indian and Alaska Native students*. Washington, DC: United States Department of Education, Office of Educational Research and Improvement.
- Clark, B. (1993). *Growing up gifted* (4th ed.). Columbus, OH: Charles E. Merrill.
- Clark, G. A., & Zimmerman, E. (1992). *Issues and practices related to identification of gifted and talented students in the visual arts*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.
- Clark, G. A., & Zimmerman, E. (1994). *Programming opportunities for students gifted and talented in the visual arts*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.
- Coleman, M. R., & Gallagher, J. J. (1992). *Report on state policies related to the identification of gifted students*. Chapel Hill, NC: Gifted Education Policy Studies Program.
- Cramond, B. (1995). *The coincidence of attention deficit hyperactivity disorder and creativity*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.
- Delcourt, M. A. B., & Evans, K. (1994). *Qualitative extension of the learning outcomes study*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.



Delcourt, M. A. B., Loyd, B. H., Cornell, D. G., & Goldberg, M. D. (1994). *Evaluation of the effects of programming arrangements on student learning outcomes*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Fetterman, D. M. (1993). *Evaluate yourself*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Ford, D. Y. (1994). *The recruitment and retention of African-American students in gifted education programs: Implications and recommendations*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Ford, D. Y. (1995). *Counseling gifted African American students in gifted education programs: Implications and recommendations*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Frasier, M. M., Garcia, J. H., & Passow, A. H. (1995). *A review of assessment issues in gifted education and their implications for identifying gifted minority students*. Storrs, CT: The National Research Center on the Gifted and Talented.

Frasier, M. M., & Passow, A. H. (1994). *Toward a new paradigm for identifying talent potential*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Gallagher, J. J., & Gallagher, S. A. (1994). *Teaching the gifted child* (4th ed.). Boston: Allyn & Bacon.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.

Gottschalk, L. R. (1969). *Understanding history: A primer of historical method* (2nd ed.). New York: Knopf.

Gubbins, E. J. (Executive Producer). (1995). *The National Research Center on the Gifted and Talented: Reaching the destination* [Videotape and Presentation Guidebook]. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Hemmings, B. C. (1985). The gifted/handicapped: Some basic issues. *The Exceptional Child*, 32(1), 57-62.

High, M. H., & Udall, A. J. (1983). Teacher ratings of students in relation to ethnicity of students and school ethnic balance. *Journal for the Education of the Gifted*, 6(3), 154-166.

Hilliard, A. G. (1991). The technology of intelligence and IQ magic in education. In A. G. Hilliard (Ed.), *Testing African American students: Special re-issue of the Negro educational review* (pp. 135-145). Morristown, NJ: Aaron Press.

Hofstadter, R. (1970). *Anti-intellectualism in American life*. New York: Knopf.

Hoge, R. D., & Renzulli, J. S. (1991). *Self-concept and the gifted child*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Jackson, N. E., & Roller, C. M. (1993). *Reading with young children*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Jacob K. Javits Gifted and Talented Students Education Act of 1988, 29 U.S.C. § 4104, 4106.

Jarwan, F. A., & Feldhusen, J. F. (1993). *Residential schools of mathematics and science for academically talented youth: An analysis of admission programs*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Johnson, D. W., Johnson, R. T., & Maruyama, G. (1983). Interdependence and interpersonal attraction among heterogeneous and homogeneous individuals: A theoretical formulation and a meta-analysis of the research. *Review of Research in Education*, 53, 415-424.

Jones, R. L. (1988). *Psychoeducational assessment of minority group children: A casebook*. Berkeley, CA: Cobb & Henry.

Kamphaus, R. W. (1993). *Clinical assessment of children's intelligence*. Boston: Allyn & Bacon.

Karnes, M. B., & Johnson, L. J. (1991). Gifted handicapped. In N. Colangelo & G. Davis (Eds.), *Handbook of gifted education* (pp. 428-437). Boston: Allyn & Bacon.

Kulik, J. A. (1992). *An analysis of the research on ability grouping: Historical and contemporary perspectives*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Kulik, J. A., & Kulik, C. L. C. (1982). Effects of ability grouping on secondary school students: A meta-analysis of evaluation findings. *American Educational Research Journal*, 19, 415-428.

Lidz, C. S. (1991). *Practitioner's guide to dynamic assessment*. New York: Guilford.

Marland, S. P. (1971). *Education of the gifted and talented*. (Report to the Congress of the United States by the Commissioner of Education, Vol. 1). Washington, DC: Government Printing Office.

Passow, A. H., & Rudnitski, R. A. (1993). *State policies regarding education of the gifted as reflected in legislation and regulation*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Pendarvis, E. D., Howley, A. A., & Howley, C. B. (1990). *The abilities of gifted children*. Englewood Cliffs, NJ: Prentice Hall.

Purcell, J. H. (1994). *The status of programs for high ability students*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Reis, S. M., Neu, T. W., & McGuire, J. M. (1995). *Talents in two places: Case studies of high ability students with learning disabilities who have achieved*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Reis, S. M., Westberg, K. L., Kulikowich, J., Caillard, F., Hébert, T., Plucker, J., Purcell, J. H., Rogers, J. B., & Smist, J. M. (1993). *Why not let high ability students start school in January? The curriculum compacting study*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Renzulli, J. S. (1973). Talent potential in minority group students. *Exceptional Children*, 39, 437-444.

Renzulli, J. S. (1977). *The enrichment triad model: A guide for developing defensible programs for the gifted and talented*. Mansfield Center, CT: Creative Learning Press.

Renzulli, J. S. (1994). *Schools for talent development: A practical plan for total school improvement*. Mansfield Center, CT: Creative Learning Press.

Renzulli, J. S. (1995). *Building a bridge between gifted education and total school improvement*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Renzulli, J. S., & Gubbins, E. J. (1994). *Report to the subcommittee on education, the arts, and humanities*. Unpublished manuscript, University of Connecticut at Storrs.

Renzulli, J. S., Reid, B. D., & Gubbins, E. J. (undated). *Setting an agenda: Research priorities for the gifted and talented through the year 2000*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

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

Reynolds, C. R., & Kaiser, S. M. (1990). Bias in assessment of aptitude. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children: Intelligence and achievement* (pp. 611-653). New York: The Guilford Press.

Richert, E. S. (1987). Rampant problems and promising practices in the identification of disadvantaged gifted students. *Gifted Child Quarterly*, 31(4), 149-154.

Richert, E. S. (1991). Rampant problems and promising practices in identification. In N. Colangelo, & G. A. Davis (Eds.), *Handbook of gifted education* (pp. 81-96). Boston: Allyn & Bacon.

Robinson, A. (1991). *Cooperative learning and the academically talented student*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Robinson, N. M. (1993). *Parenting the very young, gifted child*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Rogers, K. B. (1991). *The relationship of grouping practices to the education of the gifted and talented learner*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Runco, M. A. (1993). *Creativity as an educational objective for disadvantaged students*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Ryan, J. S. (1983). Identifying intellectually superior Black children. *Journal of Educational Research*, 76(3), 153-156.

Sheffield, L. J. (1994). *The development of gifted and talented mathematics students and the National Council of Teachers of Mathematics Standards*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Slavin, R. E. (1984). Meta-analysis in education: How has it been used? *Educational Researcher*, 12, 24-27.

Sternberg, R. J. (1985). *Beyond IQ*. Cambridge, MA: Cambridge University Press.

Taba, H. (1966). *Teaching strategies and cognitive functioning in elementary school children* (USOE Cooperative Research Project No. 2404). San Francisco: San Francisco State College.

Tannenbaum, A. J. (1979). Pre-Sputnik to post-Watergate concern about the gifted. In A. H. Passow (Ed.), *The gifted and talented: Their education and development. The seventy-eighth yearbook of the National Society for the Study of Education* (pp. 5-27). Chicago: University of Chicago Press.

Terman, L. M. (1925). *Genetic studies of genius* (Vol. 1). Stanford, CA: Stanford University Press.

Thorndike, R. M., & Lohman, D. F. (1990). *A century of ability testing*. Chicago: The Riverside Publishing Company.

Torrance, E. P. (1977). *Discovery and nurturance of giftedness in the culturally different*. Reston, VA: The Council for Exceptional Children.

Treffinger, D. J. (1994). *Evaluation report: The National Research Center on the Gifted and Talented (Year Four)*. Sarasota, FL: Center for Creative Learning.

United States Department of Education. (1993). *National excellence: A case for developing America's talent*. Washington, DC: Government Printing Office.

Westberg, K. L. (1994, April). *The successful practices study*. Paper presented at the annual meeting of the Council for Exceptional Children, Denver, CO.

Westberg, K. L., Archambault, F. X., Jr., Dobyms, S. M., & Salvin, T. J. (1993). *An observational study of instructional and curricular experiences used with gifted and talented students in the regular classrooms*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

Whitmore, J. R., & Maker, J. (1985). *Intellectual giftedness in disabled persons*. Rockville, MD: Aspen Publications.

Willard-Holt, C. (1994). *Recognizing talent: Cross-case study of two high potential students with cerebral palsy*. Storrs, CT: University of Connecticut, The National Research Center on the Gifted and Talented.

**Appendix A**  
**Designing and Developing Programs and Services for Students**  
**With High Abilities**

## **Designing and Developing Programs and Services for Students With High Abilities**

A wide array of formats have been used by The National Research Center on the Gifted and Talented to spread the word about the latest research findings in gifted and talented education. Our primary goal has always been, and continues to be, to provide practical suggestions for educators related to the most up-to-date research available. In order to make our research "practitioner friendly," we have included abstracts, guidelines, recommendations, or conclusions for several of our publications.

Each abstract highlights some of the important issues presented in the executive summary and full-length publications. The abstracts are not meant as a comprehensive description of the research findings, but as a means to "whet the appetite" of the interested practitioner. Once the abstract has been considered, readers have the option to obtain the publication for more details.

The guidelines, recommendations, or conclusions, on the other hand, provide a concrete description of the researchers' results. The primary purpose of the guidelines, recommendations, or conclusions is to provide guidance for practitioners interested in applying the research results to their particular settings. Once again, these one page documents—like the abstracts—are not meant as comprehensive overviews. A fuller understanding of the guidelines, recommendations, or conclusions only can be attained by reading the research reports. It is hoped that after reading these summaries, educators will be inclined to pursue certain topics in more detail. The ultimate goal is for practitioners to apply these suggestions to classroom practices.

Although the issues addressed by our research cover a broad range of topics, the results can be organized into several categories:

- Characteristics and Identification
- Special Populations
- Program Impact, Options, and Outcomes
- Professional Development
- Policy, Program Organization, and Management

In terms of identifying and serving special populations, researchers have investigated alternative assessment methods as they relate to American Indians, African Americans, students with physical and learning disabilities, and underachievers. Methods for serving these students using alternative identification methods have also been considered. Emphasis has been placed on recognizing talents in a wide array of areas and fostering those talents so that they may develop to their fullest potential.

Modifying the curriculum to meet the needs of high ability students has been a primary concern of the NRC/GT. Special emphasis has been placed on how to compact the curriculum and the effects of such compacting on talented students' achievement (Reis et al., 1993). Grouping practices also have received significant attention. Cooperative learning (Robinson, 1991) and ability grouping (Kulik, 1992; Rogers, 1991) have been examined for their impact on gifted learners. Reading with young children (Jackson & Roller, 1993) and suggestions for parenting very young, gifted children also have been addressed (Robinson, 1993).

Finally, with regard to programming and service options, investigators have attempted to determine what is currently being done to provide for the needs of talented

students. The Classroom Practices Survey (Archambault et al., 1993) gathered information on the ways in which high ability students are being serviced in the regular classroom. Unfortunately, the results were not all that positive. The current status of gifted programs also has been examined. The results tend to show that budgetary constraints and a lack of state mandates often determine the availability of special programs (Passow & Rudnitski, 1993; Purcell, 1994). Programming options for the visual arts (Clark & Zimmerman, 1992, 1994) and mathematics (Sheffield, 1994) have been the focus of extensive research as well.

This brief introduction by no means covers all the research topics that have been addressed. The Center has done an excellent job of ensuring that a wide range of concerns have been pursued. The best way to get a sense of what has been accomplished is to read through the abstracts, guidelines, recommendations, or conclusions and go on to investigate further the topics you find particularly relevant. Prior to the abstracts, guidelines, recommendations, or conclusions, you will find the NRC/GT Resource Matrix of Publications which is a topical listing of research studies and commissioned papers. This matrix will help readers select publications that are most relevant to their present professional positions.



### NRC/GT Resource Matrix of Publications

Authors	Titles	Characteristics & Identification	Professional Development	Program Impact, Options, & Outcomes	Special Populations	Policy, Program Organization, & Management
Abelman, R.	Some children under some conditions: TV and the high potential kid	X				
Alvino, J.	Considerations and strategies for parenting the gifted child	X				
Archambault, F. X., Jr., Westberg, K. L., Brown, S. W., Emmons, C. L., & Zhang, W.	Regular classroom practices with gifted students: Results of a national survey of classroom teachers		X	X		
Baum, S. M., Renzulli, J. S., & Hébert, T.	The prism metaphor: A new paradigm for reversing underachievement		X	X		
Brandwein, P. F.	Science talent in the young expressed within ecologies of achievement			X		
Clark, G. A., & Zimmerman, E.	Issues and practices related to identification of gifted and talented students in the visual arts	X				
Clark, G. A., & Zimmerman, E.	Programming opportunities for students gifted and talented in the visual arts			X		
Cramond, B.	The coincidence of attention deficit hyperactivity disorder and creativity				X	
Deicourt, M. A. B., & Evans, K.	Qualitative extension of the learning outcomes study			X		

## NRC/GT Resource Matrix of Publications (continued)

Authors	Titles	Characteristics & Identification	Professional Development	Program Impact, Options, & Outcomes	Special Populations	Policy, Program Organization, & Management
Delcourt, M. A. B., Lloyd, B. H., Cornell, D. G., & Goldberg, M. D.	Evaluation of the effects of programming arrangements on student learning outcomes			X		
Fetterman, D. M.	Evaluate yourself					X
Ford, D. Y.	Counseling gifted African American students: Promoting achievement, identity, and social and emotional well-being				X	
Ford, D. Y.	The recruitment and retention of African American students in gifted education programs: Implications and recommendations			X		
Frasier, M. M., Garcia, J. H., & Passow, A. H.	A review of assessment issues in gifted education and their implications for identifying gifted minority students	X				
Frasier, M. M., Hunsaker, S. L., Lee, J., Frank, E., & Finley, V.	An exploratory study of the effectiveness of the staff development model and the research-based assessment plan in improving the identification of gifted economically disadvantaged students		X			
Frasier, M. M., Hunsaker, S. L., Lee, J., Mitchell, S., Cramond, B., & Krisel, S.	Core attributes of giftedness: A foundation for recognizing the gifted potential of economically disadvantaged students	X			X	
Frasier, M. M., & Passow, A. H.	Toward a new paradigm for identifying talent potential	X				

**NRC/GT Resource Matrix of Publications (continued)**

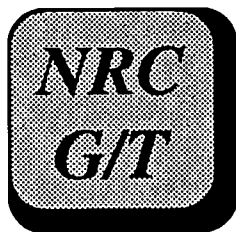
Authors	Titles	Characteristics & Identification	Professional Development	Program Impact, Options, & Outcomes	Special Populations	Policy, Program Organization, & Management
Hawkins, W. A.	Constructing a secure mathematics pipeline for minority students				X	
Hine, C. Y.	Helping your child find success at school: A guide for Hispanic parents				X	
Hine, C. Y.	Cómo ayudar a su hijo a tener éxito en la escuela: Guía para padres Hispánicos (Spanish Version)				X	
Hoge, R. D., & Renzulli, J. S.	Self-concept and the gifted child	X				
Hunsaker, S. L., Frasier, M. M., Frank, E., Finley, V. S., & Klekotka, P.	Performance of economically disadvantaged students in gifted programs through the research-based assessment plan	X			X	
Hunsaker, S. L., et al.	Family influences on the achievement of economically disadvantaged students: Implications for gifted identification and programming	X				
Jackson, N. E., & Roller, C. M.	Reading with young children			X	X	
Jarwan, F. A., & Feldhusen, J. F.	Residential schools of mathematics & science for academically talented youth: An analysis of admission programs					X

**NRC/GT Resource Matrix of Publications (continued)**

Authors	Titles	Characteristics & Identification	Professional Development	Program Impact, Options, & Outcomes	Special Populations	Policy, Program & Management
Kulik, J. A.	An analysis of the research on ability grouping: Historical and contemporary perspectives					X
Passow, A. H., & Rudnitski, R. A.	State policies regarding education of the gifted as reflected in legislation and regulation					X
Purcell, J. H.	The status of programs for high ability students					X
Reid, B. D., & McGuire, M. D.	Square pegs in round holes—These kids don't fit: High ability students with behavioral problems	X			X	
Reis, S. M., Neu, T. W., & McGuire, J. M.	Talents in two places: Case studies of high ability students with learning disabilities who have achieved				X	
Reis, S. M., et al.	Why not let high ability students start school in January? The curriculum compacting study.			X		X
Reis, S. M., et al.	¿Por qué no dejar a los estudiantes con habilidad superior comenzar la escuela en enero? Estudio de la compactación del currículum (Spanish Version)			X		X
Renzulli, J. S.	Building a bridge between gifted education and total school improvement.		X			X
Renzulli, J. S., Reid, B. D., & Gubbins, E. J.	Setting an agenda: Research priorities for the gifted and talented through the year 2000.					X

**NRC/GT Resource Matrix of Publications (continued)**

Authors	Titles	Characteristics & Identification	Professional Development	Program Impact, Options, & Outcomes	Special Populations	Policy, Program & Organization Management
Robinson, A.	Cooperative learning and the academically talented student			X		
Robinson, N. M.	Parenting the very young, gifted child	X				
Rogers, K. B.	The relationship of grouping practices to the education of the gifted and talented learner			X		X
Runco, M. A.	Creativity as an educational objective for disadvantaged students			X		
Sheffield, L. J.	The development of gifted and talented mathematics students and the National Council of Teachers of Mathematics Standards		X	X		
Taylor, L. A.	Undiscovered Edisons: Fostering the talents of vocational-technical students			X	X	
Westberg, K. L., Archambault, F. X., Jr., Dobyns, S. M., & Salvin, T. J.	An observational study of instructional and curricular practices used with gifted and talented students in regular classrooms			X		
Willard-Holt, C.	Recognizing talent: Cross-case study of two high potential students with cerebral palsy				X	
Wright, A. L., & Olszewski-Kubilius, P.	Helping gifted children and their families prepare for college: A handbook designed to assist economically disadvantaged and first-generation college attendees					X



---

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

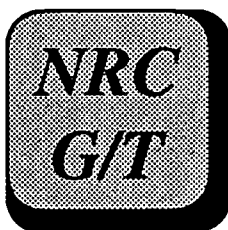
Robert Abelman

### ABSTRACT

---

This monograph examines the relationship between intellectually gifted children and television. It begins by offering generally accepted facts about gifted children, as identified in the special education and educational psychology literature. The questions this information raises with regard to television viewing and its potential effects are then presented and research-grounded answers, extracted from the most recent mass communication literature, are provided.

More specifically, the text explores how intellectual giftedness impacts on: (1) Television viewing habits; (2) The processing of television information; (3) Children's perceptions of reality of programming and advertising; and (4) The nature of parental mediation of viewing. In addition, the monograph examines: (5) The portrayal of gifted children in primetime programming; (6) Federal legislation impacting children's educational programming; and (7) The use of television in the special education classroom. Findings suggest that parents and educators of gifted children should consider television as a potentially positive and negative force in their children's lives. This is particularly so during preschool and early adolescence, when gifted children are arguably the most vulnerable and susceptible to often inaccurate, inappropriate or highly persuasive televised portrayals. A prescription for caregivers on how to best incorporate research findings into practical in-home and in-school activities, practices, and policies is extended.



RESEARCH-BASED DECISION MAKING SERIES

Guidelines

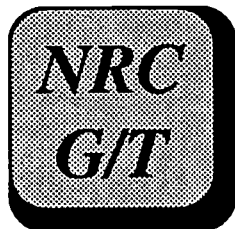
**Robert Abelman**

- 1** Young gifted children spend significantly more hours in front of the television set than their same-age peers, but viewing does not necessarily warrant parental concern or dramatic time reductions or limitations.
- 2** Parents are encouraged to make sure that the programming being watched matches their child's capability to follow story line and plot development and is sufficiently challenging.
- 3** Younger children should avoid program-length commercials.
- 4** Pay-TV (cable, video rentals) currently provides the most reliable supply of quality educational, informational, and entertaining children's programs.
- 5** Primetime commercial television offers inadequate and inappropriate role models for gifted education.
- 6** The most effective forms of parental mediation of television are purposeful program selection and co-viewing with a child.
- 7** In accordance with the Children's Television Act of 1990, parents can and should become involved in influencing the quality and quantity of local children's programming.
- 8** Television in the classroom has a place in gifted education.



**THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED**  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





## Considerations and Strategies for Parenting the Gifted Child

James Alvino

### ABSTRACT

Parents of gifted children are typically the single most important influence in their child's development, outlook and fulfillment of talent. In addition to being their child's primary caregivers, parents of gifted children alternately function as "mentor," "praiser," "disciplinarian," "playmate," "teacher," and sometimes "best friend"—to name just a few. Parents are truly the guardians and nurturers of their children's talents.

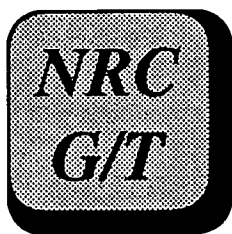
The home environment is critical in nurturing giftedness and instilling the values conducive to its full blossoming. This monograph, culled from the research and work of many experts in the fields of child development and gifted education, focuses on a number of key environmental, academic, and affective variables.

The monograph offers practical suggestions for interacting with gifted children at home, for building the kind of foundation to support the edifice of talent, productivity, and self-actualization characterizing gifted adults. It is not intended to deal with all the concerns that parents of gifted children have in raising their youngsters. The specific issues addressed are some of the critical ones that the author has discussed with parents during his 20 years in the field of gifted education. The primary age range of children addressed in the monograph is toddler through elementary school. Specific reference to age is made as needed or appropriate. Parents may use their discretion in applying the activities to children of different ages.

For the purposes of this monograph, "gifted" may be considered primarily as the combination of three characteristics—above average ability, creativity, and task commitment—coming together in an area of the child's interest (Renzulli, 1978). Children may not display these "gifted traits" all the time, nor are they necessarily gifted in all areas. In fact, most children are not.

The activities and suggestions in this monograph are designed to nurture talent development, whether academic or creative. They are not formally "differentiated" as one might expect of school activities for gifted children. While all children might benefit from many of these activities, gifted children will tend to excel in their responses (e.g., quantity and/or quality of ideas, interest, excitement), or become interested in them at an earlier age than other children. This will vary on an individual basis.





## Considerations and Strategies for Parenting the Gifted Child

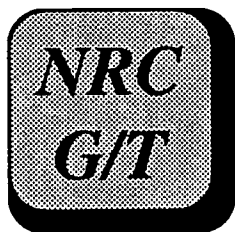
Recommendations  
James Alvino

- 1** Evaluate your parenting style, temper overbearing personality traits, focus on positive aspects of behavior, allow for unstructured time, and balance permissiveness with authority.
- 2** Discipline doesn't have to be negative. Children require structure and age appropriate responsibilities. Rules should be few, reasonable, and consistently enforced.
- 3** Provide an enriched environment with lots of materials and opportunities for exploration.
- 4** Remember the ABCs of stress management: attitude, behavior, and environment. In order to avoid stress, children need to be physically fit, learn to relax, learn to break tasks into manageable bites, and need to have positive role models.
- 5** Creativity requires a nurturing, expressive climate. Allow for regression, solitude, and divergent thinking.
- 6** Help your child learn critical thinking, problem solving, and study skills. Don't be afraid to use everyday family conflicts and problems to help your child learn the building blocks of thinking skills.
- 7** Make learning fun. Motivation and interest will increase if pressure is taken off homework and other academic material.
- 8** All work and no play never helped anyone. Try to keep a balance between structured and unstructured activities for the whole family.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





## Regular Classroom Practices With Gifted Students: Results of a National Survey of Classroom Teachers

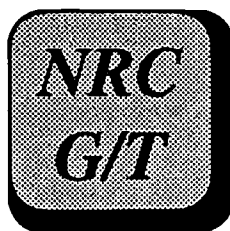
**Francis X. Archambault, Jr.**  
**Scott W. Brown**  
**Christine L. Emmons**

**Karen L. Westberg**  
**Bryan W. Hallmark**  
**Wanli Zhang**

### ABSTRACT

The Classroom Practices Survey was conducted by The National Research Center on the Gifted and Talented (NRC/GT) to determine the extent to which gifted and talented students receive differentiated education in regular classrooms across the United States. Four questions guided this research: (1) Do classroom teachers modify instructional practices and curriculum materials to meet the needs of gifted and talented students?; (2) Do classroom teachers in various parts of the country and in communities of different size provide different services for gifted students?; (3) What instructional practices are used with gifted and talented students in classrooms across the country?; and (4) Are there differences in the types of regular classroom services provided for gifted students in districts with and without formal gifted programs? The survey samples, which were drawn using stratified random sampling procedures, included a general sample of 3993 third and fourth grade teachers working in public school settings, 980 private school third and fourth grade teachers, and four samples of third and fourth grade teachers in public schools with high concentrations of African-Americans students (n=592), Asian-Americans (n=587), Hispanic-Americans (n=582) and Native-Americans (n=580). A survey instrument called the Classroom Practices Questionnaire (CPQ) was developed to obtain background information on the teachers, their classroom and their school districts as well as their perceptions of their teaching behavior related to gifted and average students in their classes. Approximately 50% of the teachers surveyed responded to the questionnaire.

The major finding of this study is that third and fourth grade teachers make only minor modifications in the regular curriculum to meet the needs of the gifted students. This result holds for public school teachers, for private school teachers, and for teachers in schools with high concentrations of the four types of ethnic minorities included in this research. The same general conclusion also applies to teachers and classrooms in various regions of the country (Northeast, South, West and North Central) and to teachers and classrooms in rural, urban, and suburban communities. Teachers who make provisions for the gifted are likely to assign them advanced readings, independent projects, enrichment worksheets, and reports of various kinds. Some classroom teachers also attempt to eliminate material that students have mastered, provide the opportunity for more advanced level work, give gifted students some input into how classroom time is allocated, and expose gifted students to higher level thinking skills, however, these modifications are not used widely. The survey also revealed that the regular classroom services provided to gifted students in schools with formal gifted programs are similar to those provided in schools without formal programs.



## Regular Classroom Practices With Gifted Students: Results of a National Survey of Classroom Teachers

Recommendations

**Francis X. Archambault, Jr.**

**Scott W. Brown**

**Christine L. Emmons**

**Karen L. Westberg**

**Bryan W. Hallmark**

**Wanli Zhang**

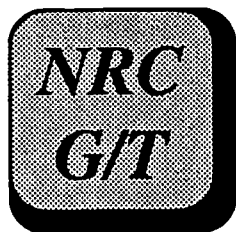
- 1** Every effort should be made to continue to offer gifted programs, thereby bringing gifted students in contact with teachers who are specially trained to meet their needs.
- 2** New and more concentrated efforts must be made to help classroom teachers provide gifted students with an enriched curriculum. These efforts include:
  - development of curriculum materials that are challenging
  - teacher training in using curricular materials, identifying the gifted, compacting the regular curriculum, and becoming flexible in meeting the needs of all students, including gifted students.
- 3** Gifted and talented students need more opportunities to:
  - pursue advanced level work
  - be exposed to higher level thinking skills
  - use enrichment centers
  - pursue a self-selected interest
  - work in groups with students having common interests
  - move to a higher grade for specific subject area instruction
  - work with students of comparable ability across classrooms at the same grade level
  - work on an advanced curriculum unit on a teacher-selected topic
  - participate in competitive programs focusing on thinking skills/problem solving
  - receive concentrated instruction in critical thinking and creative problem solving
- 4** A redefinition of the role of the gifted specialist may be necessary. In addition to serving as a resource to students, gifted specialists may also be needed to spend significant portions of their time serving as a resource to teachers.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





## The Prism Metaphor: A New Paradigm for Reversing Underachievement

Susan M. Baum  
Joseph S. Renzulli  
Thomas Hébert

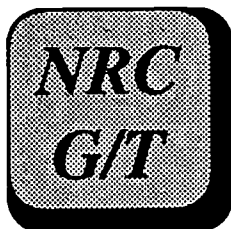
### ABSTRACT

The purpose of this multiple case study was threefold. The first objective was to examine the phenomenon of underachievement using creative productivity, specifically Type III enrichment as a systematic intervention for reversing the pattern. Type III enrichment provides opportunities for students to become actual investigators of real problems in areas of interest through suitable means of inquiry and to bring their findings to bear on real world audiences. The next goal was to describe and analyze the effects of the intervention on participating students, and last, to develop grounded theory about the dynamics of reversing the underachievement pattern. Twelve teachers who had received training in the *Enrichment Triad Model* selected 17 students identified as gifted who were underachieving in their academic classroom settings. The 17 students ranged in age from 8-13 and included 5 girls and 12 boys. All students were guided through a Type III study by their referring teacher. Interviews with students and teachers, teachers' observational logs, student products, and documents provided information about individual students in the context of pursuing Type III investigations.

The findings were numerous. First, a variety of factors were identified as contributing to the underachievement pattern of high ability students including: emotional issues; social and behavioral problems; the lack of an appropriate curriculum; and learning and self-regulation difficulties. These contributing factors resulted in the students' demonstrating unique learning needs. The second and most compelling finding of the research was the positive gains made by the students through their involvement in the Type III intervention. Eighty-two percent of the students made positive gains during the course of the year or in the year following the intervention in achievement, attitude, or behavior. Most were no longer underachieving in their school settings at the end of the intervention. Five aspects of the underachievement pattern evolved as an important focus for different groups of students depending on their unique learning needs: (1) the relationship with the teacher, (2) the presentation of self regulation strategies, (3) the opportunity to investigate their own issues of underachievement, (4) the opportunity to work in an area of interest in their preferred style of learning, and (5) the opportunity to interact with an appropriate peer group.

Several teacher behaviors emerged as crucial to the students' success in reversing the underachievement pattern. These behaviors included: (1) taking time to get to know the student, (2) focusing on positive traits of the student, (3) understanding their role as facilitator, (4) applying the role of teacher as researcher, and (5) conveying a belief in the students' abilities.

These results formed the foundation for the development of grounded theory in understanding the dynamics of reversing underachievement in high ability students. In addition, the findings endorsed the use of a positive approach to help students reverse their pattern of underachievement.



## The Prism Metaphor: A New Paradigm for Reversing Underachievement

Conclusions

Susan M. Baum

Joseph S. Renzulli

Thomas Hébert

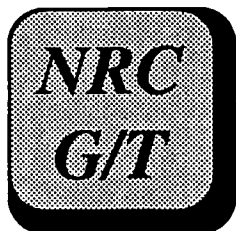
- 1** Underachievement is based on a variety of contributing factors including:
  - emotional issues,
  - social and behavioral problems,
  - inappropriate curriculum, and
  - learning deficits.
  
- 2** Six teacher behaviors promoted student success:
  - taking time to get to know the student,
  - focusing on positive traits of the student,
  - focusing their energies on locating and providing resources for their students,
  - understanding the individualized small group investigations of real problems (Type III),
  - applying the role of teacher as researcher, and
  - conveying a belief in the students' abilities.
  
- 3** The Type III process satisfied individual student needs resulting in positive relationships with adults, acquisition of self-regulation strategies, an understanding of personal issues of underachievement, interest-based activities, and the influence of a positive peer group.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





## Science Talent in the Young Expressed Within Ecologies of Achievement

Paul F. Brandwein

### ABSTRACT

Six interrelated constructs form the body of this study.

The first is built upon researches and studies that lead to a preliminary conception of an ecology of achievement: It describes a skein of achievement-centered, goal-targeted environments that do—or should—comprise the inspiring teaching and learning that can enhance the endowments of the young.

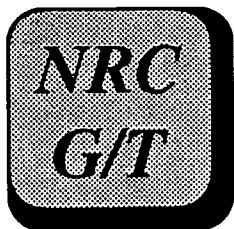
The second presents studies of unfavorable environments that block the goals of equal opportunity, optimum achievement in science, and the discovery of science proneness or talent. These unfriendly ecologies have contributed to a fall-off in the general science pool deemed necessary to maintain equitable achievement in the present postindustrial era.

The third comprises elements of formal learning in augmenting environments focusing on instruction as an event evoking early discovery through self-identification of gifted children with a particular bent (or proneness) to science.

The fourth is based in the conviction that curriculum and instruction are distinct but related fields within present models of instructed learning. It sees curriculum as serving as content within an open, facilitating structure, and instruction as a passport to activities enabling early self-identification. It provides a system for discovery and self-selection of *all* young for differentiated, sustainable futures in today's postindustrial world. Such a design would enable the young to demonstrate their powers in pursuit of their individual excellence. In short, instructional and curricular innovation combined as instructed learning constitutes a system of self-identification and discovery of early science proneness in its stage-shift to developing science talent.

The fifth exemplifies curriculum and instruction, focused in special aptitudes and abilities, relevant to science proneness as precursor to self-identification of a science talent. This goal depends on an augmenting environment, differentiated in instruction and learning, which provides open opportunity for originative inquiry resulting in a creative act. The latter criterion sample is a work, which expresses science talent. (An empirical evaluation establishes the validation of this approach as a specific criterion for self-discovery of science talent.)

The sixth concerns science talent in practice. It describes a skein of discoveries, one leading to another, and concludes with a definition of science talent.



# SCIENCE

RESEARCH-BASED DECISION MAKING SERIES

Recommendations

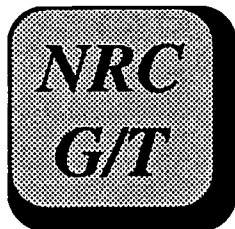
**Paul F. Brandwein**

- 1** The widest net ought to be flung to open opportunity for all young in an idea-enactive, inquiry oriented learning curriculum and instruction. This generous cast offers access to equal opportunity for self-identification, along with, but not exclusively through, ability and achievement testing as composite factors for entry into the science talent pool.
- 2** The structure of curriculum and the mode of instruction in classroom and laboratory serve to identify science proneness, an understanding that suggests a significant way to increase the science talent pool.
- 3** Science proneness begins in a base of a general giftedness and develops its component skills in verbal, mathematical, and in time, the nonentrenched tasks of problem seeking, finding, and solving in specialized science fields. Eventually given favorable ecologies, science proneness can shift to an expression in a work showing science talent.
- 4** Science talent calls for identification through in-context evaluation in long-term inquiry without reference to IQ or standardized tests of achievement. It provides for testing of science talent through a criterion sample of work of the young as predictive of their future accomplishments.
- 5** When the young enter into the climate of science, they should benefit from at least two resources as gifts of schooling. First, they deserve access to the substance of science, a rich even massive, conceptual structure of cumulative knowledge. Second they deserve opportunities to participate in problem finding and concept seeking and forming—that is, to experience the style of science—its particular modes of inquiry and explanation.
- 6** The experience of originative research in high school may motivate a decision to pursue a career in science and thus qualify students for continued research in their undergraduate years. Originative inquiry can lead to early expression of science talent in the young; it therefore is a worthy practice in the quest of the young scientist-to-be.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

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

Gilbert A. Clark  
Enid Zimmerman

### ABSTRACT

---

Important issues and practices relative to identification of gifted and talented students in the visual arts are introduced in this paper. As many of the issues and practices discussed are complex and often misunderstood or misapplied, they are examined critically in terms of their research implications and applications. Problems of definition, identification, and recommended practices are addressed based on past and current research about education of artistically gifted and talented students.

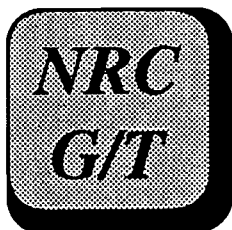
Issues are discussed relative to the apparent lack of agreement upon definition of talent in the arts and the role of culture, student characteristics, creativity, skills, cognitive abilities, affective abilities, interest and motivation, potential and processes contrasted with performance and products, art specializations, and distribution of arts talents in the general school population. Each issue is examined in light of complexities that have confounded definitions of talent in the arts and practices used in identification programs.

Issues relative to identification of gifted and talented students in the arts are then examined in relation to the use of outcomes derived from standardized art, intelligence, achievement and creativity tests, factors of students' backgrounds, personalities, values, ages, and use of multiple criteria identification systems. Various aspects of these issues are discussed in regard to their uses and misuses in current gifted and talented visual arts programs in relation to identification procedures.

Examination of current practices and critical reviews of their advantages and disadvantages, based on issues of definition and identification of art talent, are reported in regard to non-structured nominations, structured nominations, group IQ, achievement tests, academic records, standardized arts and creativity tests, informal art instruments, portfolio and performance reviews, interviews, and observations. These practices are hierarchically arranged as steps in an identification program and in terms of their most appropriate age/grade applications.

Conclusions are drawn about future applications of issues and practices that are critiqued. Multiple criteria identification systems are recommended and future research about definition and identification of gifted and talented students in the visual arts is strongly encouraged.





# identification **in the** ARTS

RESEARCH-BASED DECISION MAKING SERIES

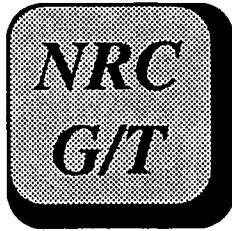
Recommendations  
 Gilbert A. Clark  
 Enid Zimmerman

- 1** The term *artistically gifted and talented* is recommended for purposes of research and practices relative to the identification and education of students with high ability in the visual arts.
- 2** Art talent, like intelligence, should be conceived of as normally distributed with students with highly developed art abilities at one end of the distribution and students with poorly developed art abilities at the lower end of the distribution.
- 3** Caution should be exercised in using creativity tests as a means of identifying artistically gifted and talented students.
- 4** Identification of artistically gifted and talented students should be based upon attention to student potential and work in progress, as well as final performance and products.
- 5** Currently available standardized art tests should not be used to identify students with high abilities in the visual arts.
- 6** Students' backgrounds, personalities, values, and age need to be studied as factors in identification of art talent.
- 7** Use of multiple criteria systems is recommended in all identification programs for artistically gifted and talented students.



THE NATIONAL RESEARCH CENTER  
 ON THE  
 GIFTED AND TALENTED  
 The University of Connecticut  
 362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## Programming Opportunities for Students Gifted and Talented in the Visual Arts

Gilbert A. Clark  
Enid Zimmerman

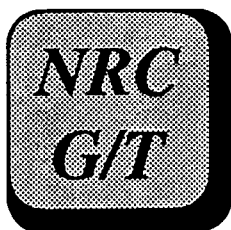
### ABSTRACT

---

The major purpose of a visual arts program for artistically gifted and talented students is to bring students together with high interests and abilities in art in ways that will broaden and deepen their knowledge about art, sharpen their art skills, and offer them learning opportunities rarely found in a regular art classroom setting. There is considerable research about programming opportunities for gifted and talented students with high academic abilities. There is a paucity of research, however, about program options for artistically gifted and talented students. Some surveys, case studies, and program evaluation studies about students gifted and talented in the arts are reported in relation to ability grouping and acceleration options for students. Before large-scale research might begin, however, there are many definitional and semantic problems in relation to programming options for gifted and talented arts students that need to be clarified. Many writers have proposed different categories and definitions of programming opportunities for gifted and talented students currently offered by schools across the country. Based on a review of the literature of gifted and talented education, and of art education, categories of mixed-ability grouping, ability grouping, and acceleration as programming opportunities for gifted and talented visual arts students are generated. Examples of programming opportunities in each of these categories are offered.

Four national surveys of programs for students with high abilities in the visual and performing arts are reported that offer some descriptive, demographic baseline data. The work of gifted and talented students with precocious abilities in the visual arts also is reported in eight contemporary case studies and these offer a baseline from which future case studies can be contrasted and compared. In addition, research about the effectiveness of ten program options for students gifted and talented in the arts offers a beginning from which other evaluation studies can be compared.

It is concluded that there is no foundation of research findings on which to conduct meta-analysis about programming opportunities for students gifted and talented in the visual arts. There is an obvious need for such a foundation and six recommendations are made to help rectify this situation.



PROGRAMMING  
in the **ARTS**  
RESEARCH-BASED DECISION MAKING SERIES

Recommendations  
**Gilbert A. Clark**  
**Enid Zimmerman**

- 1** There should be development of some agreed upon vocabulary of terms relative to programming opportunities for the education of students with high abilities in the visual arts.
- 2** Research should be conducted to evaluate the effectiveness of programming options such as mixed-ability grouping, ability grouping, and acceleration as applied to students gifted and talented in the visual arts.
- 3** Universities and colleges and private, federal, and state agencies should be encouraged to support ongoing, large-scale survey research to address demographic issues about the nature of programming opportunities for high ability arts students, including size, purpose, design, selection, curriculum, funding, time allotments, and arts-related experiences being offered.
- 4** Evaluation studies need to be conducted, and results compared and contrasted, with respect to specific program options within mixed-ability grouping, ability grouping, and acceleration programs to help identify the most efficient and effective options appropriate to various contexts and diverse populations of students who are artistically gifted and talented.
- 5** More individual case studies, and the initiation of longitudinal research about large populations, are needed to create a basis for understanding which educational interventions are best suited for students with high abilities in the visual arts.
- 6** Authors of reports that include evaluation of programming opportunities for students with high abilities in the visual arts should adopt a standard practice of reporting a program's weaknesses, as well as its strengths, and such evaluations to be conducted, using authentic as well as standard measures, by persons not directly associated to the program being assessed.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

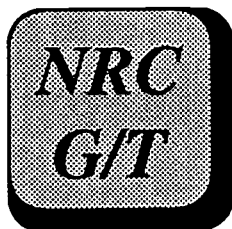
## The Coincidence of Attention Deficit Hyperactivity Disorder and Creativity

Bonnie Cramond

### ABSTRACT

---

A review of the literature indicates that there are striking similarities between the behavioral manifestations of Attention Deficit Hyperactivity Disorder (ADHD) and creativity. A brief history of ADHD is given tracing the difficulty researchers have experienced in defining and accurately diagnosing this condition. Of particular concern is the fact that the defining characteristics of ADHD, inattention, hyperactivity, and impulsivity, are also key descriptors in biographies of highly creative individuals. The possibility of an overlap in the conditions of high creativity and ADHD is proposed, and some individuals exemplary of both conditions are described. Educators and parents are cautioned to consider the practical implications of mistaking one condition for the other, and warned about the problems with diagnosing ADHD in bright and creative children. Finally, they are advised about appropriate actions to take if a child is suspected of having Attention Deficit Hyperactivity Disorder, referred for psychological screening, or diagnosed with ADHD.



**creativity**  
 ATTENTION DEFICIT DISORDER  
 RESEARCH-BASED DECISION MAKING SERIES

Recommendations  
**Bonnie Cramond**

*When Attention Deficit Hyperactivity Disorder is suspected*

- 1** Be open-minded to the possibility that difficult behaviors may be indicative of special abilities, such as creativity, as well as problems.
- 2** Become knowledgeable about the behavioral manifestations of creativity and Attention Deficit Hyperactivity Disorder (ADHD) throughout the life span.
- 3** Observe and record under what conditions the key behaviors are intensified or reduced.
- 4** Ask the child what s/he is thinking about right after a period of daydreaming.

*If the child is referred for psychological screening*

- 5** Whenever possible, choose a psychologist who is knowledgeable about giftedness and creativity as well as ADHD, or willing to learn.
- 6** Be sure that a creativity test or checklist is completed in addition to the ADHD checklist.

*If the child is diagnosed as having ADHD*

- 7** Get a second opinion.
- 8** Be cautious about recommendations for the use of methylphenidates or other drugs.
- 9** Be cautious about recommendations for an unstimulating curriculum with lessons broken into small parts.
- 10** Provide opportunities both inside and outside of school to enhance creativity and build self-esteem.



THE NATIONAL RESEARCH CENTER  
 ON THE  
 GIFTED AND TALENTED  
 The University of Connecticut  
 362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## Qualitative Extensions of the Learning Outcomes Study

Marcia A. B. Delcourt  
Karen Evans

### ABSTRACT

---

The Learning Outcomes Study was a nationwide longitudinal investigation of 1,010 elementary school children who had just entered programs for gifted learners in grades 2 and 3 when the study began. The primary purpose of the project was to assess student changes during their first two years across four types of program arrangements: Within-Class programs, Pull-Out programs, Separate Classes, and Special Schools. These types of programs were selected because they are the most frequently used classroom arrangements nationwide. The Learning Outcomes Study was extended by adding a qualitative dimension focusing on an "exemplary" model from each of the four program types. These programs were identified and studied with the intention of providing educators and policy makers with valuable information on how these programs were perceived and implemented. This study was not intended to determine whether one type of program was better than another, but rather to fully comprehend the prevailing circumstances that influence the impact of a certain type of programming arrangement in a given community.

The purposes of the qualitative study were threefold: (a) to formulate a system for selecting "exemplary" program models; (b) to further contribute to the knowledge base of gifted education by conducting in-depth examinations of outstanding elementary school gifted programs; (c) to examine ways in which outstanding programs address the needs of students from diverse cultures. All three objectives were fulfilled. Through the program selection process, two evaluation tools were created, the Program Profile Form and a set of Program Satisfaction Surveys. The forms are useful for documenting the key components of a program. They can be used to design a model or to compare several programs. Four versions of the Program Satisfaction Survey were created for students, parents, teachers, and administrators. They contain parallel items which enable an evaluator to compare responses across similar concepts.

The proposed benefits of this project also included a profile of four types of programming models commonly employed in gifted education, and specific criteria for assessing program models. In addition to descriptions of each program's setting and general procedures (identification process, curricular options, staff selection, school demographics), program profiles included the following five criteria: leadership, atmosphere and environment, communication, curriculum and instruction, and attention to student needs. All selected programs addressed the needs of diverse populations of students in three different ways. First, all selected programs focused on the identification of underrepresented populations of students in their written policies. Second, by focusing on the individual needs of all students, teachers took into consideration specific characteristics related to children from traditionally underserved populations. Third, teachers and administrators stressed parental and community partnerships with schools, thus encouraging families to become involved with the education of their children.



## Qualitative Extensions of the Learning Outcomes Study

Recommendations

Marcia A. B. Delcourt

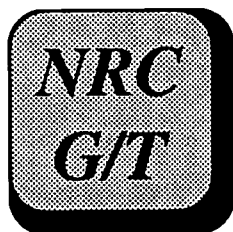
Karen Evans

- 1** A strong program begins with an administrator who is an advocate of gifted education. The administrator must be able to describe the needs and characteristics of gifted children and elicit support from the district and community.
- 2** Staff development on the special needs of gifted and talented children is essential for all faculty members. Program planning should involve staff members from many disciplines.
- 3** The entire school environment should emanate a positive attitude regarding the program. The program is an integral part of the school and can add to the learning atmosphere within the building.
- 4** Gifted and talented children have special characteristics that require different strategies. Teachers need to be aware both of the needs and of the various options available for meeting these needs.
- 5** Flexibility is a key ingredient for the success of any program. Students' needs and interests vary and both the teacher and program should be able to accommodate individual differences.
- 6** Identification and program activities should be sensitive to the needs of diverse populations of gifted and talented children. Culturally diverse and economically disadvantaged students should be actively recruited.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





## Evaluation of the Effects of Programming Arrangements on Student Learning Outcomes

Marcia A. B. Delcourt    Brenda H. Loyd  
Dewey G. Cornell    Marc D. Goldberg

### ABSTRACT

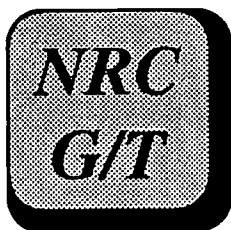
This study represents the first major attempt at the national level to assess the effects of programs for the gifted and talented on learning outcomes for elementary school students. The Learning Outcomes Study at the University of Virginia was a two-year investigation of over 1,000 elementary school children in grades 2 and 3. Fourteen Collaborative School Districts (CSD) in 10 states participated in the study. Academic and affective development were evaluated within four popular types of grouping arrangements: Within-Class, Pull-Out, Separate Class, and Special School. Study participants had either just entered gifted programs, were high ability students who did not attend special programs, or were nongifted students. The sample included students from urban, suburban, and rural environments as well as individuals representing underserved populations.

Data collection sources included students, teachers, and parents. Analyses focused on assessments of achievement, attitudes toward learning processes, self-perception, intrinsic/extrinsic motivation, student activities, behavioral adjustment, and teacher ratings of learning, motivation, and creativity. Data were collected in the fall and spring of the 1990-1991 academic year and at the beginning and end of the following academic year. This project addressed three major research questions: (a) Are there significant differences between program types (strategies)? (b) Do any of the program types have differential effects on underserved students? (c) Are there differential effects in achievement for underserved students after the summer break (spring 1991 and fall 1991)? The primary research questions were examined using analysis of covariance procedures, after controlling for initial differences in performance and socioeconomic status. The independent variables were program type (four levels representing participation in one of the programs for the gifted, two comparison groups) and racial/ethnic status. The dependent variables were each of the outcome variables.

In terms of achievement, gifted children attending special programs (specifically special schools, separate classes and pull out programs) performed better than their gifted peers not in programs. As far as measures of affect were concerned, there were no differences by program type or ethnic status with respect to Social Acceptance. Likewise, no significant differences appeared either across groups or according to racial/ethnic status regarding internal vs. external criteria for success/failure. Students from Within-Class and Special School programs felt more capable than nongifted students in making judgments about what to do in school. Students from Separate Class programs were the most reliant on teacher guidance for completing assignments and solving problems. The programs with the lowest scores on the Preference for Challenge scale were the ones with the highest levels of achievement in a traditionally more academic environment, the Separate Class and Special School programs.

Regarding attitudes toward learning, students in Special Schools had the highest scores. This means that they were the most likely to perceive the classroom as a student-centered environment. The most striking pattern among the data from the teacher ratings was the significantly lower scores for students in Special Schools as compared to students in all other types of programs. These results lead to a conclusion that no single program fully addresses all the psychological and emotional needs of students.





## Evaluation of the Effects of Programming Arrangements on Student Learning Outcomes

Conclusions

Marcia A. B. Delcourt    Brenda H. Loyd  
Dewey G. Cornell    Marc D. Goldberg

- 1** The results of the study showed that there were significant differences in achievement and affect for students in different types of programs for the gifted (Special Schools, Separate Classes, Pull-Out Programs, Within-Class Programs). No single program fully addressed all the psychological and emotional needs of gifted students.
- 2** Gifted children in Pull-Out, Separate Class, and Special School programs showed higher achievement than gifted students who were not in programs and, in most cases, than those from Within-Class programs and nongifted students. Although a limited amount of time was spent in the resource room (approximately 2 hours/week), the emphasis on academics within the Pull-Out model appears to have contributed to the achievement level of these students.
- 3** Students from the Separate Class programs scored at the highest levels of achievement and at the lowest levels of perception of academic competence, preference for challenging tasks, sense of acceptance by peers, internal orientation, and attitudes toward learning.
- 4** Students from Within-Class and Special School programs felt that their learning environments gave them the opportunity to make judgments independently. They felt more capable than nongifted students to make judgments about what to do in school. Students in Special Schools were more likely to view their classrooms as student-centered than their peers in all other settings.
- 5** The achievement levels of African American students in gifted programs remained above the national average throughout the two years of the study.
- 6** Given a list of standard behavior problems, gifted students were found to have similar problems in kind and degree as nongifted students.
- 7** Teachers in Special Schools consistently rated their students lower in creativity, learning, and motivation. Therefore, it is recommended that members of selection committees for gifted programs should observe the *relative* ratings of students nominated for their programs instead of selecting *a priori* cut-off scores.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## Evaluate Yourself

David M. Fetterman

### ABSTRACT

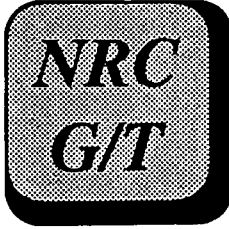
---

The health of a gifted and talented program requires both self-examination and external evaluation. Routine self-examination allows early detection of educational problems and confirmation of a sound programmatic approach. This discussion is intended to highlight some of the common sense ways of reflecting upon one's programmatic achievements and shortcomings, and discuss briefly the value of an external evaluation component in that reflective process.

Self-examinations and external evaluations, in addition to sharing concepts and techniques, can complement each other and help to cross validate data from each approach. Self-evaluations help maintain an educational program's health on a daily basis; expert external evaluation is essential to an in-depth and objective understanding. External evaluators offer training and experience and an "objective eye" rarely found inside a program. They can help identify goals and objectives at the onset of a program and can help participants take stock of an ongoing program. They can help establish standards, benchmarks, and milestones with which to measure student, teacher, administrator, and program performance against multiple goals. External evaluators can also provide feedback about progress toward those goals and inform policy decision makers about the impact of a program in a credible fashion. External evaluation plays an invaluable role in refining healthy programs and has a significant impact on future funding and programmatic concerns.

Evaluation is essential to learn how a gifted program works, how effective programs are, and how to raise their standards of quality. Self-evaluations should be a routine part of daily program activity. Students, teachers, administrators, and parents should be encouraged to conduct informal self-appraisals on a daily or at least weekly basis, questioning and comparing what students are doing in relation to stated program goals and objectives. Systems should be developed to give regular feedback to students, teachers, administrators, and parents, including parent-teacher conferences, faculty meetings, and student performance conferences.

External and independent evaluations complement self-evaluations by ensuring a more objective and credible appraisal. Formative evaluations provide a continual flow of information to program officials throughout a review to improve program practice. Summative evaluations can enhance formative evaluations by providing additional knowledge with a focus on policy decision making. External evaluations can improve program practice and student performance.



Recommendations  
David M. Fetterman

- 1** Make sure the evaluation serves the practical information needed by the targeted audiences.
- 2** Make sure the evaluation is realistic (politically and pragmatically) and cost effective.
- 3** Make sure the evaluation is conducted in an ethical manner.
- 4** Make sure the evaluation is as accurate as possible.
- 5** Make sure program documentation exists.
- 6** Make sure you review as many relevant data sources as possible.
- 7** Make sure you compare the program's stated goals with their actual performance.
- 8** Make sure you describe and assess the climate.
- 9** Make sure you talk to students.
- 10** Make sure program finances are reviewed.
- 11** Make sure community and school board components are included in the evaluation.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## **Counseling Gifted African American Students: Promoting Achievement, Identity, and Social and Emotional Well-Being**

**Donna Y. Ford**

### **ABSTRACT**

---

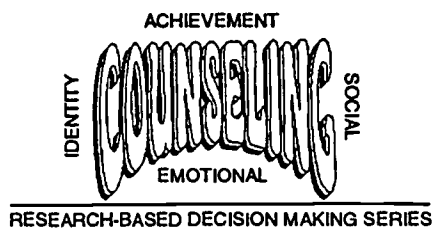
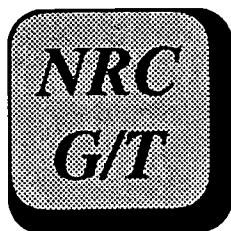
The educational and socioemotional status of African Americans is a major concern of educators, counselors, and reformers. Much of this concern stems from the unfortunate reality that African American students represent a significant portion of the educationally and socially disenfranchised. Educationally, African Americans have disproportionately high rates of dropout, high representation in special education, and high rates of poor academic achievement; vocationally, they have disproportionately high rates of unemployment and underemployment; and socially, African Americans have disproportionately high rates of incarceration and teen pregnancy.

If efforts to help African American students lead rewarding lives are to be effective, there must be a collaborative partnership among families, educators, and counselors. Too often, however, the crucial role of counselors in this partnership has been limited to providing academic assistance to teachers. This unidimensional focus ignores the many contributions counselors make to the overall well-being of students, particularly African American students.

Historically, counseling gifted students has not been an important part of educational and counseling discourse. Misperceptions and stereotypes of gifted students as being immune to social, emotional, and academic problems have contributed to the lack of counseling for these students. When counseling has been provided, it has been limited primarily to academic counseling, and assessment and placement issues. Because more children are entering school with serious personal and academic problems, the roles and responsibilities of counselors must change and expand to meet the needs of all children who seek their guidance and assistance.

The purpose of this monograph is to help bridge the fields of education and counseling, focusing in particular on the academic, social and emotional, and psychological concerns of gifted African American students relative to achievement issues, social and emotional issues, and psychological issues. Also discussed are gender issues between African American males and females relative to social and educational variables; barriers to counseling for African American students, including those identified as gifted; and recommendations for counselors who work with these students.

Counselors are in an ideal position to ensure that African American students remain in gifted programs once identified and placed. Counselors represent an important component of both the recruitment and retention of students in gifted programs. Because a major goal of counseling is to promote healthy self-concepts and to ensure psychological growth, counselors must have an awareness and understanding of the many issues that hinder gifted African American students' psychological, as well as social and emotional well-being.



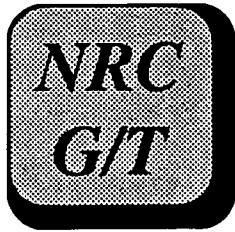
Guidelines  
**Donna Y. Ford**

- 1** Focus on and acknowledge the strengths of gifted African American students.
- 2** Help gifted African American students to build positive social and peer relations.
- 3** Promote social competence and encourage biculturalism among African American students.
- 4** Teach African American students how to cope with social injustices.
- 5** Adopt broader and more comprehensive definitions of underachievement.
- 6** Involve families, African American professionals, and community leaders in the learning and counseling process.
- 7** Explore the quality and quantity of support systems and resources available to African American students.
- 8** Integrate multiculturalism throughout the learning and helping process.
- 9** Counsel African American students using their preferred learning styles.



THE NATIONAL RESEARCH CENTER  
 ON THE  
 GIFTED AND TALENTED  
 The University of Connecticut  
 362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## The Recruitment and Retention of African American Students in Gifted Education Programs: Implications and Recommendations

Donna Y. Ford

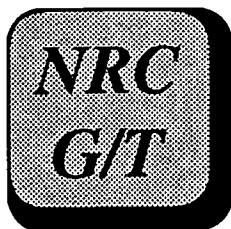
### ABSTRACT

---

The identification and placement of African American students in gifted programs has received increased attention in recent years, primarily due to Javits legislation and the stellar efforts of Torrance, Passow, Frasier, Renzulli, Baldwin, and others who have devoted a considerable amount of research to this issue. While their collective efforts have considerably influenced the recruitment of African American youth into programs and services for gifted students, one shortcoming has been an almost exclusive attention to the identification and placement process. This aspect, referred to herein as "recruitment," represents only one crucial element in increasing the representation of African American students in gifted programs. Equally important, but often overlooked, is the "retention" of these students in gifted education once placed. What mechanisms exist to ensure that, once identified and placed, gifted African American students remain in the program? Do they feel a sense of belonging and inclusion? Are academic as well as social and emotional needs met?

The poor representation of African American students in gifted programs may occur for numerous reasons. These students may complain of: (1) being a minority within a minority because they are often the only or one of few African American students in the gifted program. These feelings may be more likely when students attend predominantly White schools and gifted programs; (2) feeling isolated from White classmates; (3) experiencing intense and frequent peer pressures from African American youth not in the gifted program; (4) feeling misunderstood by teachers who often lack substantive preparation in multicultural education; (5) feeling misunderstood by teachers who do not understand the nature of giftedness, especially among culturally and racially diverse students; (6) feeling misunderstood by family members who do not understand the nature of giftedness.

The primary purpose of this paper is to describe not only barriers to the successful recruitment and retention of African American students in gifted education programs and services, but also to present recommendations for ensuring that the recruitment and retention process is successful.



**RECRUITMENT  
and  
RETENTION**  
RESEARCH-BASED DECISION MAKING SERIES

Guidelines

**Donna Y. Ford**

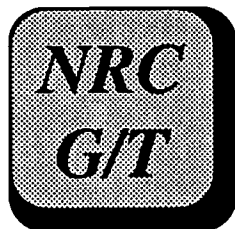
- 1** A culture of assessment rather than a culture of testing promises to capture the strengths of gifted African American students.
- 2** There is no "one size fits all" intelligence or achievement test. Multidimensional identification and assessment practices offer the greatest promise for recruiting African American students into gifted programs.
- 3** Identification instruments must be valid, reliable, and culturally sensitive. If any of these variables are low or missing, the instrument should not be adopted for use with African American and other minority students.
- 4** To increase the representation of African American students in gifted programs, educators must adopt contemporary definitions and theories of giftedness.
- 5** Comprehensive services must be provided if the recruitment and retention of African American students in gifted education is to be successful.
- 6** Teachers who are trained in both gifted education and multicultural education increase their effectiveness in identifying and serving gifted African American students.
- 7** To prevent underachievement, gifted students must be identified and served early.
- 8** Qualitative definitions of underachievement offer more promise than quantitative definitions in describing poor achievement among gifted African American students.
- 9** The representation of African American students in gifted programs must be examined relative to both recruitment and retention issues.
- 10** Family involvement is critical to the recruitment and retention of African American students in gifted education. Parents and extended family members must be involved early, consistently, and substantively in the recruitment and retention process.



**THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED**

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007






---

## A Review of Assessment Issues in Gifted Education and Their Implications for Identifying Gifted Minority Students

Mary M. Frasier      Jamie H. Garcia  
A. Harry Passow

### ABSTRACT

---

This review provides background information concerning the issues that affect the identification of gifted minority students, suggests implications for developing more effective identification procedures, and proposes directions for formulating a new approach to the resolution of the problems of identifying gifted minority students—a population that is seriously underrepresented in programs for the gifted.

Although there is consensus that gifted children can be found in every level of society and in every cultural and ethnic group, there is little question that minority and economically disadvantaged students are not found in programs in proportionate numbers. Their underrepresentation has been attributed to a variety of historical, philosophical, psychological, theoretical, procedural, social, and political factors. Each of these factors, singularly and in combination, has impacted the assessment of giftedness in minority student populations.

Three major reasons for underrepresentation are discussed:

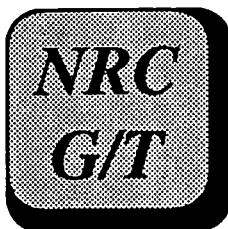
- (a) **Test Bias.** By far, underrepresentation of minority participation in programs for the gifted is most frequently attributed to biases in standardized testing—charges that tests are, for various reasons, prejudiced or unfair to ethnic minorities, the economically disadvantaged, and individuals whose first language is not English.
- (b) **Selective Referrals.** Two factors have a significant influence on the underreferral process: teacher attitudes toward and knowledge about minority students and the type of school these students are likely to attend.
- (c) **Reliance on deficit-based paradigms.** The focus on deficits makes recognition of the strengths difficult and, in addition, detracts from needed structural changes in schools.

In addition to proposals for dealing with assessment-related problems by designing strategies for reducing or eliminating test bias, improving the referral process strategies, and stressing cultural strengths rather than cultural deficits, other recommendations for modifying traditional assessment procedures include: (a) the use of multiple criteria and nontraditional measures and procedures, and (b) modifying the selection criteria.

It is argued that inequities in assessment need to be considered from a broader perspective, one that takes into account the multiple factors that affect the identification of gifted minority students across social, cultural, and economic groups. Toward this end, four aspects of assessment are discussed with implications for research: (a) the construct of giftedness, (b) the referral process, (c) the identification process, and (d) the process by which decisions are made using assessment information for curriculum and instructional planning.

There is no doubt that the need for new paradigms that will include populations that have not been adequately identified and whose potential has not been sufficiently nurtured has important implications for individuals and society. Student identification procedures and program implementation must take into account the needs of a variety of students from diverse backgrounds.





## A Review of Assessment Issues in Gifted Education and Their Implications for Identifying Gifted Minority Students

Conclusions

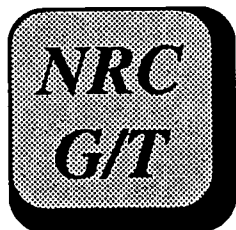
Mary M. Frasier      Jamie H. Garcia  
A. Harry Passow

- 1** Although there is consensus that gifted children can be found in every level of society and in every cultural and ethnic group, minority and economically disadvantaged students have not been found in gifted programs in proportionate numbers.
- 2** The underrepresentation of minority student populations has been attributed to a variety of factors including test bias, selective referrals and a reliance on deficit-based paradigms.
- 3** Inequities in assessment need to be considered from a broad perspective that takes into account the multiple factors (historical, philosophical, psychological, theoretical, procedural, social, and political) that affect the identification of gifted minority students. Suggested directions for future research include:
  - addressing the fundamental question: What constitutes giftedness and is it manifested the same in all cultures and groups?
  - designing and testing ways to improve the referral process and increase teacher understanding of the different ways talent potential may be exhibited by students from different cultural, economic, and language groups
  - exploring the effective use of information about students from a variety of objective and subjective sources
  - developing effective programs and curricula that maximize the interactive relationships among assessment, curriculum and instruction.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

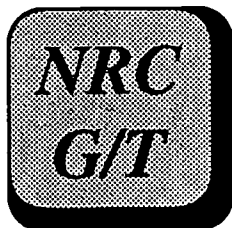
## **An Exploratory Study of the Effectiveness of the Staff Development Model and the Research-Based Assessment Plan in Improving the Identification of Gifted Economically Disadvantaged Students**

**Mary M. Frasier      Scott L. Hunsaker**  
**Jongyeun Lee      Elaine Frank**  
**Vernon S. Finley**

### **ABSTRACT**

---

A Staff Development Model (SDM) and a Research-Based Assessment Plan (RAP) developed by researchers at the University of Georgia were investigated for their potential to improve the identification and education of gifted students from economically disadvantaged families, some of whom may have limited proficiency in the English language. The concept of giftedness as a psychological construct defined by a basic set of traits, aptitudes, and behaviors (TABs) formed the basis of the two models. Overall the models were perceived as an effective way to (a) improve teachers' ability in observing giftedness in target population student groups and (b) facilitate the collection and use of information derived from multiple sources when making decisions for program placement and services. A basic implication of this study is that the TABs associated with the giftedness construct appeared to provide a feasible way to train teachers to recognize exceptional ability in target population student groups. Secondly, the SDM and RAP process appeared to affirm the importance of involving teachers and other staff in the entire process of identifying gifted target students. Finally, feedback on the RAP suggested that it is a viable way to systematically consider the interrelationships of information from multiple sources when making gifted program placement decisions.




---

## An Exploratory Study of the Effectiveness of the Staff Development Model and the Research-Based Assessment Plan in Improving the Identification of Gifted Economically Disadvantaged Students

Guidelines

Mary M. Frasier      Scott L. Hunsaker  
Jongyeun Lee      Elaine Frank  
Vernon S. Finley

---

- 1** Economically disadvantaged gifted students are often not recommended for gifted programs by their teachers because their gifts and talents are difficult to recognize.
- 2** Educators should not rely exclusively on traditional assessment procedures (IQ tests, achievement tests) to identify economically disadvantaged gifted students. A variety of information (student products, checklists, portfolios) need to be considered.
- 3** Teacher training in the identification of economically disadvantaged gifted students improves the teacher's ability to recognize unique talents and gifts.
- 4** Once classroom teachers have been adequately trained in assessment procedures, they should play a key role in the identification process. Referral, identification, and programming need to be approached from the classroom teacher's perspective.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007






---

## Core Attributes of Giftedness: A Foundation for Recognizing the Gifted Potential of Economically Disadvantaged Students

<b>Mary M. Frasier</b>	<b>Scott L. Hunsaker</b>
<b>Jongyeun Lee</b>	<b>Sandra Mitchell</b>
<b>Bonnie Cramond</b>	<b>Sally Krisel</b>
<b>Jaime H. García</b>	<b>Darlene Martin</b>
<b>Elaine Frank</b>	<b>Vernon S. Finley</b>

### ABSTRACT

---

This paper reviews literature characterizing gifted students from minority and/or economically disadvantaged families and areas and presents a proposal for focusing on the core attributes that underlie the giftedness construct as a more viable way to facilitate their identification and education.

A qualitative content analysis method was used to analyze phrases and sentences in literature on the gifted to determine common features that characterize gifted children from the target population and the gifted population in general. The results of this analysis became the basis for the proposal to use core attributes of giftedness to design more viable procedures of identifying giftedness in target population student groups. Ten core attributes of the giftedness construct were identified: communication skills, creativity/imagination, humor, inquiry, insight, interests, memory, motivation, problem-solving, and reasoning. The paper concludes with implications for using these core attributes to facilitate teachers' recognition of gifted target population students and to guide the selection and development of assessment measures in identification.



## Core Attributes of Giftedness: A Foundation for Recognizing the Gifted Potential of Economically Disadvantaged Students

### Guidelines

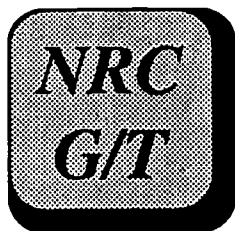
Mary M. Frasier	Scott L. Hunsaker
Jongyeun Lee	Sandra Mitchell
Bonnie Cramond	Sally Krisel
Jaime H. García	Darlene Martin
Elaine Frank	Vernon S. Finley

- 1** A variety of techniques should be used to identify economically disadvantaged gifted students (checklists, rating scales, interviews).
- 2** Identification of economically disadvantaged gifted students should be based on a list of core attributes that capture the essence of giftedness (communication skills, humor, imagination/creativity, inquiry, insight, interest, memory, motivation, problem-solving, and reasoning). The attributes apply to students in any social class or economic position.
- 3** Core attributes used to identify economically disadvantaged gifted students should not focus on intellectual abilities alone. Emphasis needs to be given to personality and motivation factors as well.
- 4** Gifted students from minority populations should not be considered one group to which appropriate identification procedures apply. Each individual has his/her own characteristic strengths which need to be identified and serviced.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## Toward a New Paradigm for Identifying Talent Potential

Mary M. Frasier  
A. Harry Passow

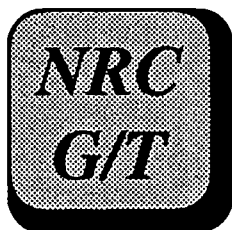
### ABSTRACT

---

In passing the Jacob K. Javits Gifted and Talented Students Education Act of 1988 (P.L. 100-297), Congress reasserted the belief that youngsters with talent potential are found in all cultural groups, across all economic strata, and in all areas of human endeavor. The Javits Act reaffirmed the conviction that in every population there are individuals with potential for outstanding achievement who are in environments where this aptitude may not be recognized nor nurtured. Such individuals are most likely to come from racial/ethnic minority or economically disadvantaged groups.

The under-inclusion in programs for the gifted of economically disadvantaged and minority children has been well documented. In recent years, there have been significant and continuing increases in both the number and proportion of racial/ethnic minority and economically disadvantaged children in the school population. Yet, those students are consistently underrepresented in programs for the gifted while being disproportionately represented in special education programs.

This monograph contains six sections which provide practitioners with a useful paradigm for identifying giftedness among all groups of young people. First, a review and critique of traditional identification approaches is provided to highlight the limitations the tests may have for identifying talent potential among those currently underrepresented in gifted programs. Second, the values and environmental influences of several cultures are examined. Specifically, cultural and environmental values, which are different from mainstream values, are underscored to illuminate the additional challenges posed to high achieving, ethnically diverse students. Within-group cultural differences are also illuminated because they are often as great or greater than differences among subgroups. The third section concerns the results of an exploratory study designed to examine the characteristics of economically disadvantaged and limited English proficient gifted students. In the fourth chapter behaviors that characterize gifted performance are examined. Simply put, research suggests that there may be well-known, "absolute" behaviors which characterize high performance cross-culturally, as well as specific attributes or behaviors which manifest themselves in particular cultural contexts or settings. These specific behaviors are not as well known as the absolute behaviors and can be used by practitioners to identify the talent potential among racial/ethnic minority or economically disadvantaged groups. Emerging insights from the Javits Gifted and Talented Students' Education Act are addressed in the fifth section of this monograph. Finally, all insights are synthesized in the last chapter. Five elements that will feature in a new paradigm of giftedness are presented and discussed. These elements include: new constructs of giftedness, absolute and specific behaviors, cultural and contextual variables, authentic assessment, and identification through learning opportunities.



## Toward a New Paradigm for Identifying Talent Potential

Conclusions

Mary M. Frasier

A. Harry Passow

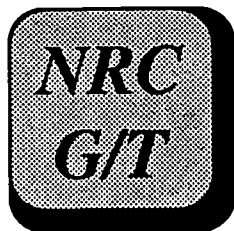
- 1** Youngsters with talent potential are found in all cultural groups, across all economic strata, and in all areas of human endeavor.
- 2** New constructs of giftedness reflect a multifaceted, multicultural, multidimensional perspective and are defined by traits, aptitudes and behaviors to be nurtured rather than by static test performance.
- 3** There are *absolute attributes* of giftedness, traits, aptitudes, and behaviors which characterize high performance cross-culturally, as well as *specific attributes* or behaviors which manifest themselves in particular cultural contexts or settings.
- 4** Increased sensitivity to and understanding of culturally determined and environmentally affected behaviors will help educators to recognize and interpret performance indicators of talent potential in the context in which they are displayed.
- 5** The use of multiple criteria and authentic assessment techniques—instruments and assessment tools other than intelligence and achievement tests—is widely advocated.
- 6** The provision of rich learning opportunities for all students provides a means for children to display their gifted behaviors and talent potential.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## Constructing a Secure Mathematical Pipeline for Minority Students

William A. Hawkins

### ABSTRACT

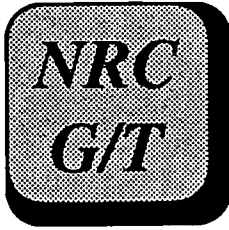
---

American myths about mathematics which emphasize innate ability rather than hard work reinforce racial and gender stereotypes about who can do mathematics. The author gives several examples of prominent mathematicians and physicists whose lives contradict the common conception that all prominent contributors to the progress of mathematics and science were geniuses whose talent was apparent virtually from birth.

International comparisons show that all American students lag behind their foreign counterparts. Details of these comparisons and how they have influenced reform in mathematics education are considered. Focusing on minority students, barriers to achievement in mathematics are discussed as well as statistics on minority underrepresentation.

After a description of efforts of the Mathematical Association of America to increase the representation and participation of minorities in mathematics-based fields, the report closes with suggestions for teachers of mathematics at the precollege and collegiate level.





Guidelines

William A. Hawkins

- 1** Mathematics is no different from any other human endeavor. Hard work is the key to longlasting accomplishment.
- 2** Familiarize yourself with the National Council of Teachers of Mathematics (NCTM) Standards so your students can take advantage of the tremendous changes taking place in the K-12 mathematics curriculum.
- 3** Access multicultural materials detailing the mathematical accomplishments of non-Western societies.
- 4** Encourage mathematical talent among minority middle and high school students through mentorships and advanced intervention programs.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

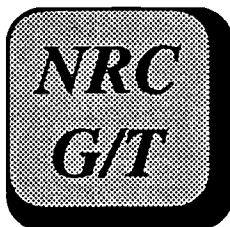
## **Helping Your Child Find Success at School: A Guide for Hispanic Parents**

**Candis Y. Hine**

### **ABSTRACT**

---

This resource book is based on a study that examined factors in the family learning environment of high achieving Puerto Rican students which contributed to their success in school. The analysis of students' and parents' perceptions provides insights into family factors that may support high achievement. The resource book describes eight keys to open the doors of success at school, and provides specific information to help parents to help their children to develop their talents and to get the most out of school.



## Helping Your Child Find Success at School: A Guide for Hispanic Parents

Recommendations  
Candis Y. Hine

- 1** Let your child know you value achievement in school. Parents must be aware of their children's progress, guide their education, and praise their children for their efforts.
- 2** Help your child to develop strong language skills. Parents should encourage correct language usage of both English and Spanish. Bilingualism has been associated with superior performance on both verbal and nonverbal tests.
- 3** Provide a strong family support system for your children.
- 4** Make sure you nurture a strong family bond at home to help your children to develop a positive image of themselves and their culture.
- 5** Do not let your child use cultural biases, or prejudices held by people at school or in the community, as an excuse for failure.
- 6** Make sure you become involved in your child's school and extracurricular activities.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

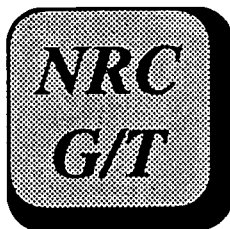
## **Cómo Ayudar a su Hijo a Tener Éxito en la Escuela Guía para Padres Hispanos**

**Candis Y. Hine**

### **RESUMEN**

---

Este folleto se basa en un estudio sobre los factores en el ambiente familiar de estudiantes puertorriqueños con alto rendimiento que contribuyeron en su éxito escolar. El análisis de las opiniones de los estudiantes y de sus padres proporcionan datos sobre los factores que apoyan el logro académico. Este folleto describe ocho claves para abrir las puertas del éxito en la escuela, a su vez, brinda información a los padres para ayudar a sus hijos a desarrollar sus talentos y obtener lo mejor fuera de la escuela.



## Cómo Ayudar a su Hijo a Tener Éxito en la Escuela Guía para Padres Hispanos

Recomendaciones  
Candis Y. Hine

- 1** Permita a su hijo saber que usted valora el logro escolar. Los padres deberían estar al tanto de los progresos escolares de sus hijos, guiar su educación, y elogiar sus esfuerzos.
- 2** Ayude a su hijo a desarrollar fuertes habilidades en la lengua. Los padres deberían alentar el correcto uso del Inglés como del Español. El bilingüismo se ha relacionado con un rendimiento superior en los exámenes verbales y en los no verbales.
- 3** Proporcione a sus hijos un fuerte apoyo familiar.
- 4** Asegúrese de crear un fuerte lazo familiar en el hogar para ayudar a sus hijos a desarrollar una imagen positiva de sí mismos y de su cultura.
- 5** No permita a su hijo utilizar sesgos culturales o prejuicios de personas en la escuela o en la comunidad, como excusa para el fracaso.
- 6** Asegúrese de participar en las actividades escolares y extracurriculares de su hijo.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

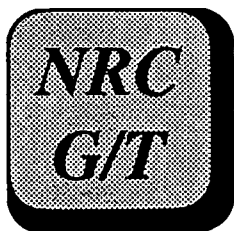
## Self-Concept and the Gifted Child

Robert D. Hoge  
Joseph S. Renzulli

### ABSTRACT

---

Three issues are addressed in this monograph. First, do gifted and average children differ in their self-concepts? Second, what, if any, are the effects on self-concept of labeling a child as gifted or exceptional? Third, does placing the child in a separate enriched or accelerated classroom have any impact on self-concept? The paper begins with a discussion of issues relating to self-concept and giftedness constructs. This is followed by a review of the research evidence bearing on the three questions. That research is shown to yield variable results and to exhibit some methodological flaws. Nevertheless, some conclusions regarding the three issues are stated. The monograph concludes with discussions of the implications of the results for future research and for the counseling of gifted students.



# SELF **concept**

RESEARCH-BASED DECISION MAKING SERIES

Conclusions & Guidelines

**Robert D. Hoge**

**Joseph S. Renzulli**

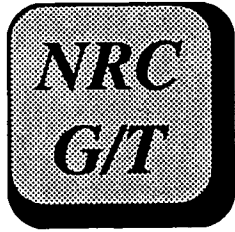
- 1** The direct comparisons of gifted and nongifted students revealed that the gifted students as a group showed no major deficits in self-esteem.
- 2** Some indirect evidence exists that labeling a child gifted would have a positive impact on self-esteem, but direct evidence is lacking.
- 3** There is some support for a social comparison type of process; that is, that moving a child from a regular classroom to a homogeneous, highly gifted group will have a negative impact on self-concept.
- 4** It is imperative that future researchers pay more careful attention to their treatment of self-concept and giftedness variables.
- 5** There is a need for more attention to the definition and measurement of the giftedness construct.
- 6** Future research must attend more closely to experimental design.
- 7** There is a need for longitudinal studies in which changes in the relation between giftedness and self-concept can be explored at different age levels.
- 8** Counseling with gifted and talented students should have a developmental focus.
- 9** Exceptional children often have special needs with respect to emotional health and social competence; systematic efforts should be made to accommodate these needs.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## **Performance of Economically Disadvantaged Students Placed in Gifted Programs Through the Research-Based Assessment Plan**

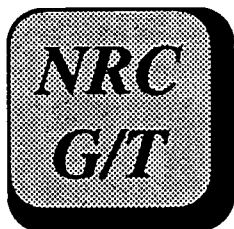
**Scott L. Hunsaker      Mary M. Frasier**  
**Elaine Frank        Vernon S. Finley**  
**Peggie Klekotka**

### **ABSTRACT**

---

The performance of students identified as gifted through the Research-Based Assessment Plan (RAP) was studied during their first year of placement in gifted programs. Their attitudes and the attitudes of their parents toward the gifted program placements were also studied. Performances and attitudes of parents and students identified through traditional criteria were used as a comparison. Results of MANOVAs showed that RAP identified students and traditionally identified students displayed significantly different performances and attitudes. On teacher ratings of performance, RAP identified students received higher ratings than traditionally identified students on Interaction with Others, while traditionally identified students exceeded RAP identified students' ratings on Use of Critical Thinking. On the student attitude instrument, RAP identified students were higher than traditionally identified students on four items: (a) Help Teachers Plan, (b) Learn Outside the Classroom, (c) Sit with Friends, and (d) Work on Special Things. No significant differences were found in parent attitudes, which were generally positive from the parents of both traditionally identified students and RAP identified students. These results provide a beginning foundation for the validity of the RAP as a process for identifying economically disadvantaged students as gifted.





## Performance of Economically Disadvantaged Students Placed in Gifted Programs Through the Research-Based Assessment Plan

Conclusions

Scott L. Hunsaker      Mary M. Frasier  
 Elaine Frank          Vernon S. Finley  
 Peggie Klekotka

- 1** Teachers did not perceive a difference in the level of performance between traditionally identified students and Research-Based Assessment Plan identified students.
- 2** Traditionally identified students rated higher on critical thinking assessments than Research-Based Assessment Plan students suggesting that exposure to high level thinking skills needs to be stressed for these students.
- 3** Research-Based Assessment Plan identified students had generally positive attitudes about the gifted programs and in particular found opportunities to interact and work with friends.
- 4** The parents of both traditionally and Research-Based Assessment Plan identified students were basically high in their ratings of the gifted programs and each group held similar concerns for children.



THE NATIONAL RESEARCH CENTER  
 ON THE  
 GIFTED AND TALENTED  
 The University of Connecticut  
 362 Fairfield Road, U-7 • Storrs, CT 06269-2007






---

## Family Influences on the Achievement of Economically Disadvantaged Students: Implications for Gifted Identification and Programming

**Scott L. Hunsaker**      **Mary M. Frasier**  
**Lisa L. King**          **Betty Watts-Warren**  
**Bonnie Cramond**      **Sally Krisel**

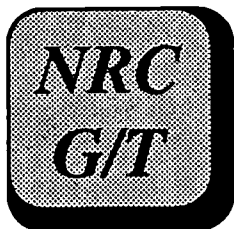
### ABSTRACT

---

Historically, the study of family influences on the achievement of economically disadvantaged youth has focused on status variables. A moderate, positive correlation has been found between socioeconomic status and children's academic achievement. However, status variables have been criticized for oversimplifying a complex problem. In their stead, family process variables have been studied. Family processes, such as support of education and aspirations for children's academic attainment, have been shown to influence positively the achievement of children. Studies continue to be done from both a status and a process point of view. More recent studies of status have focused on family structure variables. These studies have shown a correlation between single parenting and low academic achievement. However, the presence of extended family members has been shown to overcome this problem in many instances. Further, some researchers have shown that the relationship of single parenthood with academic achievement is mediated through processes in the family that support academic achievement.

In lieu of studying status and process variables, more recent studies have begun to investigate the impact of contexts on family processes that affect academic achievement. In this context research, it is recognized that families do not operate in isolation to influence achievement, but that communities and schools also have importance. Schools can be particularly helpful when they teach in ways that are congruent to the culture of the family and find ways of involving the family in the school culture.

Studies of these same issues within the field of gifted education have followed the same path as the general achievement research. Status variables have been found to correlate directly with the performance of students on measures used to identify them as gifted. More recently, researchers have begun to look at the influence of context on the family processes that affect which students are identified for gifted programs and influence how they are served. Studies of context reveal that gifted students exist and are nurtured within economically disadvantaged families, but point to the need to focus on individual expressions of giftedness within cultural contexts when making decisions about the placement and programming. As indicated here, advances have been made in understanding the relationships among families, academic achievement, and gifted education. However, a general lack of studies focusing on these issues makes apparent the need for further research of this type.



## Family Influences on the Achievement of Economically Disadvantaged Students: Implications for Gifted Identification and Programming

### Conclusions

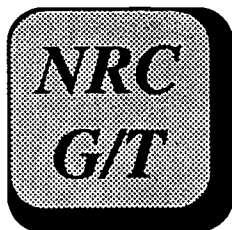
Scott L. Hunsaker	Mary M. Frasier
Lisa L. King	Betty Watts-Warren
Bonnie Cramond	Sally Krisel

- 1** Academically competent students exist in all ethnic and socioeconomic groups.
- 2** The existence of poverty or single parent family situations does not coincide with a lack of interest in academic achievement. Families of economically disadvantaged students need to be dealt with individually and not within the context of social stereotypes.
- 3** The school needs to be aware that the culture of the family may not match that of the school. Identification of strengths and interpretations of behaviors need to be sensitive to these cultural differences.
- 4** Research into the educational needs of economically disadvantaged students has centered around identification and instrumentation. A wider context, involving culture and environmental factors, needs to be included in studies of these students.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## Reading With Young Children

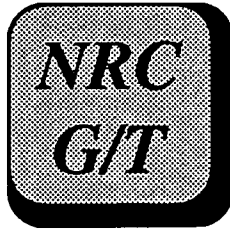
Nancy Ewald Jackson  
Cathy M. Roller

### ABSTRACT

---

This report provides research-based answers to questions parents and teachers often ask about how reading and writing develop from infancy to about age 6 years. The unusually rapid development of these skills in some young children is considered in a major section on precocious readers. Precocious reading ability is a form of gifted intellectual performance that may appear alone or together with other kinds of gifted performance. However, this report was not written only for those who are concerned with the development or education of gifted children. Much of the report addresses general questions about the development of reading and writing ability in young children who may have other gifts. Each major section of the report was written so that it can stand alone, and each contains a separate reference list and list of recommended resources for parents and teachers.

The research literatures summarized in this report reveal that literacy development begins very early as the 2- or 3-year-old child acquires a broad base of knowledge and skills in the context of a wide range of activities and experiences. Learning to identify and print letters and words are important parts of beginning to read and write, but early literacy development also encompasses learning about the nature of stories, the characteristics and functions of print, and the sound patterns of oral language. Aspects of reading and writing skills are likely to develop in predictable sequences, but individual children's development across skill areas may be uneven. Literacy-related activities are most likely to nurture a child's development if they are geared to the child's current level of understanding and interest. The reasons why some children become precocious readers are not well understood. Precocious readers are likely to have a solid repertoire of reading skills, but individuals differ in their relative strengths, and precocious readers may not be equally advanced in other skill areas, such as writing or reasoning. Precocious readers are likely to remain good readers, but children who have not started early often catch up. Early assessment of a child's reading and writing skills may facilitate the development of appropriate curriculum for both precocious and slow-to-develop readers.



Conclusions

Nancy Ewald Jackson

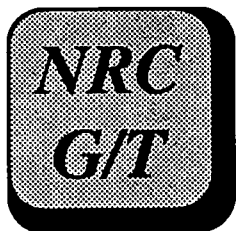
Cathy M. Roller

- 1** During the preschool years, children begin understanding that print has meaning, that writing takes particular forms, and that words consist of sets of sounds.
- 2** Effective story reading involves talking about the story and listening to the child's reactions.
- 3** A child's mastery of oral language is likely to be one of the most critical factors in a child's success in reading. In early reading development, the child's developing knowledge of letters, sounds, words, and aspects of a story is important. In later development, wide-ranging knowledge of the world and the ability to express it becomes more critical.
- 4** In early writing as in early reading, preschool children initially use unconventional forms that gradually develop into the conventional forms used by adults. A child's early reading and writing skills sometimes develop in parallel sequences, but there is evidence that one area may develop more rapidly than another.
- 5** While learning to read involves much more than learning to name letters and recognize their sounds, learning letter names and sounds and the relationships between them is an important part of early literacy development.
- 6** Reading failure in later years can be prevented by the early identification of reading difficulties, followed by appropriate instruction.
- 7** Precocious reading is an example of giftedness as defined by the Jacob K. Javits Gifted and Talented Students Education Act of 1988.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## **Residential Schools of Mathematics and Science for Academically Talented Youth: An Analysis of Admission Programs**

**Fathi A. Jarwan  
John F. Feldhusen**

### **ABSTRACT**

---

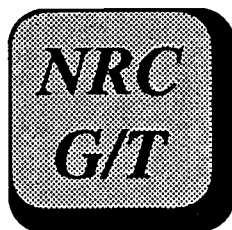
The purpose of this project was to analyze and evaluate the procedures used in selecting youth for state supported residential schools of mathematics and science. A combination of qualitative and quantitative research designs was used to test the predictive potential of selection variables. Special forms were used to collect quantitative and demographic data. The predictor variables included home school grade point average (GPA), standardized aptitude test (SAT-M, SAT-V, or ACT) scores, interview ratings, file ratings, and composite scores. The criterion variables included first and second year adjusted grade point averages (GPA), and the overall first and second year GPAs. An interview protocol composed of 12 questions was developed to survey administrators regarding information about admission programs. Promotional literature of all schools was another source of information about admissions.

Results of the correlation and regression analyses of pre- and post-admission data from seven schools indicated that the students' home school adjusted grade point average was the best predictor of first and second year grade point averages. The Scholastic Aptitude Test (SAT) was the second best predictor.

Ratings of complete files and ratings of applicants by admission interviewers were of far less value in predicting student achievement; there was a great deal of fluctuation and inconsistency in how they correlated with criterion variables. Composite scores function poorly and inconsistently for predicting first year GPA in most schools. Overall, statistical prediction is superior to professional prediction by interview or rating of complete files.

Analysis of enrollment data indicate that African Americans and Hispanic students are proportionally underrepresented, while Asian students are proportionally over-represented. White students are fairly represented in some schools, underrepresented in some schools, and over-represented in others. Male students outnumbered female students in some schools and vice versa. Male students outscore female students on the mathematical section of the SAT.

Results of the interviews indicated that the use of multiple criteria is seen by administrators as a major strength of their identification systems, but the lack of minority representation is viewed as a major weakness. The relatively high rate of attrition is also viewed as a weakness. Teachers in most schools are not directly involved in identification and selection processes. Instead, decisions were made by admission personnel, counselors, and administrative staff.



## Residential Schools of Mathematics and Science for Academically Talented Youth: An Analysis of Admission Programs

Recommendations

**Fathi A. Jarwan**

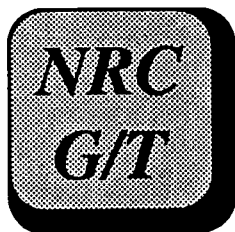
**John F. Feldhusen**

- 1** The use of empirical data (regression analyses) yielded quite accurate predictions of achievement in the residential schools and indicated which variables were best predictors in the identification-selection process.
- 2** In this study, the best predictors or selection criteria were GPA in the high school courses taken prior to selection and admission to the residential school or SAT or ACT scores.
- 3** Adequate training of committee members and faculty who are involved in the selection process is necessary to assure a reasonable degree of cross-rater or cross-interviewer reliability.
- 4** Active involvement of teachers in the identification and selection processes and the use of information collected during these processes may be important factors for lowering attrition rates and for planning successful instruction.
- 5** Identification/selection of students for residential school programs is basically a measurement and statistical process and should be carried out by personnel who are well trained and competent in these areas.
- 6** The articulation of the identification-selection system with the curriculum and evaluation methods is essential to program success for gifted and talented programs in both residential schools and public schools.
- 7** The educational programs and curricula observed in the residential schools were of very high quality and could readily serve as models for public school programs for gifted and talented youth.



**THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED**  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007






---

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

James A. Kulik

### ABSTRACT

---

Researchers have struggled for decades to find answers to questions about ability grouping. Does anyone benefit from it? Who benefits most? Does grouping harm anyone? How? How much? Why? Research reviewers have never reached agreement about the findings. For every research reviewer who has concluded that grouping is helpful, another has concluded that it is harmful.

Today, however, reviewers 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. They have painstakingly catalogued the features and results of hundreds of studies, and with the help of new statistical methods, they are now drawing a composite picture of the studies and findings on grouping. In his 1976 presidential address to the American Educational Research Association, Glass coined the term *meta-analysis* to describe this statistical approach to reviewing research literature.

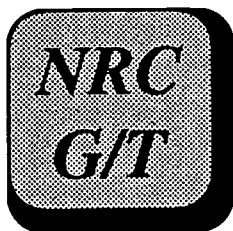
Meta-analytic reviews have already shown that the effects of grouping programs depend on their features. Some grouping programs have little or no effect on students; other programs have moderate effects; and still other programs have large effects. The key distinction is among (a) programs in which all ability groups follow the same curriculum; (b) programs in which all groups follow curricula adjusted to their ability; and (c) programs that make curricular and other adjustments for the special needs of highly talented learners.

Programs that entail only minor adjustment of course content for ability groups usually have little or no effect on student achievement. In some grouping programs, for example, school administrators assign students by test scores and school records to high, middle, and low classes, and they expect all groups to follow the same basic curriculum. The traditional name for this approach is *XYZ grouping*. Pupils in middle and lower classes in XYZ programs learn the same amount as equivalent pupils do in mixed classes. Students in the top classes in XYZ programs outperform equivalent pupils from mixed classes by about one month on a grade-equivalent scale. Self-esteem of lower aptitude students rises slightly and self-esteem of higher aptitude students drops slightly in XYZ classes.

Grouping programs that entail more substantial adjustment of curriculum to ability have clear positive effects on children. Cross-grade and within-class programs, for example, provide both grouping and curricular adjustment in reading and arithmetic for elementary school pupils. Pupils in such grouping programs outperform equivalent control students from mixed-ability classes by two to three months on a grade-equivalent scale.

Programs of enrichment and acceleration, which usually involve the greatest amount of curricular adjustment, have the largest effects on student learning. In typical evaluation studies, talented students from accelerated classes outperform non-accelerates of the same age and IQ by almost one full year on achievement tests. Talented students from enriched classes outperform initially equivalent students from conventional classes by 4 to 5 months on grade equivalent scales.





# ABILITY GROUPING

RESEARCH-BASED DECISION MAKING SERIES

Guidelines

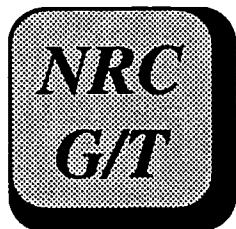
**James A. Kulik**

- 1** Although some school programs that group children by ability have only small effects, other grouping programs help children a great deal. Schools should therefore resist calls for the wholesale elimination of ability grouping.
- 2** Highly talented youngsters profit greatly from work in accelerated classes. Schools should therefore try to maintain programs of accelerated work.
- 3** Highly talented youngsters also profit greatly from an enriched curriculum designed to broaden and deepen their learning. Schools should therefore try to maintain programs of enrichment.
- 4** Bright, average, and slow youngsters profit from grouping programs that adjust the curriculum to the aptitude levels of the groups. Schools should try to use ability grouping in this way.
- 5** Benefits are slight from programs that group children by ability but prescribe common curricular experiences for all ability groups. Schools should not expect student achievement to change dramatically with either establishment or elimination of such programs.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007






---

## State Policies Regarding Education of the Gifted as Reflected in Legislation and Regulation

**A. Harry Passow  
Rose A. Rudnitski**

### ABSTRACT

---

This study consists of an analysis of state policies on the identification and education of the gifted as reflected in legislation, regulations, rules, recommendations, and guidelines provided by 49 of the 50 states. The report is not a state-by-state description of policies but rather an analysis of the elements or components that comprise a comprehensive policy for identifying and nurturing talent potential.

The analysis indicates considerable variability among states so that there is no single model that provides a pattern for other states to follow. Some state policies are clearer, more positive, and more directive than others. Some documents are stronger with respect to specific components (e.g., nature of mandate, identification, curriculum, or evaluation).

The elements examined include:

- State mandated services
- District plans for the gifted
- Gifted education as part of special education
- Philosophy or rationale
- Definitions of gifted and talented
- Identification procedures
- Programs for the gifted
- Differentiated curriculum and instruction
- Counseling and other support services
- Program evaluation
- State funding for the gifted

The fact that all 50 states have formulated policies in the form of legislation, regulations, rules, or guidelines that support education of the gifted and talented represents a very significant achievement, a consequence of vigorous and persistent efforts on the part of many advocates. Having attained this goal, the time is now right for a reexamination of existing policies, taking into account research, experience, and developments in education, psychology, organization, and related fields; the ongoing school reform and restructuring efforts; the changing context for society and schooling that is occurring; the distinctive state-local relationships by which diverse mandates and the regulations permitting discretionary programs are implemented differently; and the consequences of the ways local school districts have implemented state policies.

A number of suggestions are provided for educators and other advocates as they reexamine and reassess their state's policies. These suggestions deal with the elements or components of a comprehensive policy for the education of the gifted and talented.



## State Policies Regarding Education of the Gifted as Reflected in Legislation and Regulation

Conclusions

A. Harry Passow  
Rose A. Rudnitski

- 1** All 50 states have formulated policies in the form of legislation, regulations, rules, or guidelines that support education of the gifted and talented.
- 2** The absence or presence of strict controls and jurisdictions determine the nature of programs for the gifted.
- 3** About a fifth of the states include the gifted and talented under a special federal education legislation.
- 4** Basic frameworks are provided for identifying and educating gifted children. Policies regarding identification procedures range from broad guidelines to specific standards to very detailed lists of instruments.
- 5** States vary widely with respect to programs elements (definition, identification procedures, instruction, organization, evaluation, and funding) that are required or recommended.
- 6** A few states suggest that gifted and talented students have distinctive counseling and psychological needs.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

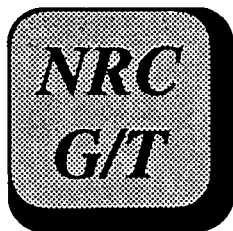
## The Status of Programs for High Ability Students

Jeanne H. Purcell

### ABSTRACT

---

The Program Status Research Study was designed 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 19 states, divided into four groups, according to economic health and the existence or nonexistence of a state mandate to provide program services. Results 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. 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 Status of Programs for High Ability Students

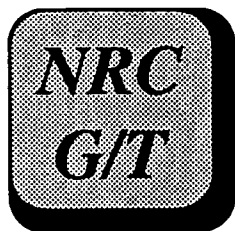
Recommendations  
**Jeanne H. Purcell**

- 1** Advocacy efforts in states in good economic health with mandates need to be maintained.
- 2** Advocacy efforts need to be increased in states in poor economic health and/or where mandates do not exist. Advocacy for high ability students must occur with classroom teachers, building administrators, local board of education members, and legislators and executive officers at the state level.
- 3** Advocates for high ability children who want to maintain state mandates need to direct a large proportion of their efforts toward policy makers in the legislative and executive branches of their state government.
- 4** Advocates in states without mandates need to direct their efforts toward policy makers.
- 5** Decisions to modify or eliminate programs for high achieving students should be based on (1) research and (2) a thorough analysis of the effectiveness of a program at the school and district level. Decisions regarding the status of programs should not be based on trends which may not be supported by research.
- 6** Policy makers need to plan and articulate more comprehensive services for children with high abilities.



THE NATIONAL RESEARCH CENTER  
 ON THE  
 GIFTED AND TALENTED  
 The University of Connecticut  
 362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## **Square Pegs in Round Holes—These Kids Don't Fit: High Ability Students With Behavioral Problems**

**Brian D. Reid  
Michele D. McGuire**

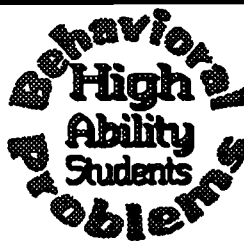
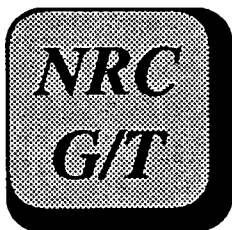
### **ABSTRACT**

---

The legacy of Terman may be the creation of a new myth about the gifted. Terman reported that the students identified as gifted for his study (IQ>140) were superior in most areas of functioning to those who did not qualify. Terman claimed that gifted students were appreciably superior to unselected children in physique, health, social adjustment, and moral attitudes; a perspective that has become the predominant thinking in the field. This widely held view may be one of the major, underpinning reasons that students with disabilities are routinely overlooked for gifted services.

The present paper proposes that students with attention and/or behavioral problems, in particular, are not considered for gifted services due to overt negative behaviors and conduct problems which conflict with the "Terman perspective." Emphasis is placed on an examination of the similarities among characteristics of high ability/creative children and students identified with emotional or behavioral disorders and/or attention-deficit/hyperactivity disorder. Credence can be given to the idea that many of the manifestations of these disorders are similar to, and perhaps are, indicators of creative and/or learning potential. A major premise is that students who appear to have behavioral problems may be, in fact, gifted. Further, it is proposed that students identified with emotional or behavioral disorder and/or attention-deficit/hyperactivity disorder may be dually qualified for services; i.e., also eligible to be served in programs for the gifted.

Important implications for understanding the rationale to include students with behavioral challenges in gifted programs, as well as recommendations for inservice and preservice teacher education, and considerations regarding interventions, curricula, and adaptations in the general school environment are provided.



Research-Based Decision Making Series

Recommendations

Brian D. Reid

Michele D. McGuire

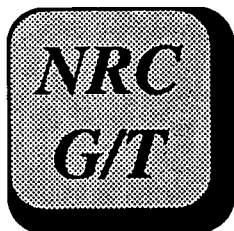
- 1** Schools and universities need to devise inservice and preservice programs to provide information for educators that will broaden their views about the nature and needs of high ability students and students with behavioral difficulties to recognize the potential for students to concurrently possess both exceptionalities.
- 2** School systems need to revise identification procedures to locate bright students with behavioral problems.
- 3** The student evaluation should be comprehensive in nature; assessment must examine the full range of student strengths and weaknesses rather than the merely "testing" for the predetermined, a priori category.
- 4** School systems need to implement practices that support educators in their efforts to serve bright students with behavioral problems.
- 5** Curricula for high ability students with emotional or behavioral disorder or attention-deficit/hyperactivity disorder need to be appropriate for each individual child and, thereby, designed to be challenging, creative, and motivating.
- 6** Instructional practices for high ability students with emotional or behavioral disorder or attention-deficit/hyperactivity disorder need to be diverse and determined for each child on an individual basis.
- 7** The learning environment designed for high ability students with emotional or behavioral disorder or attention-deficit/hyperactivity disorder needs to be conducive to creative pursuits and risk-taking, and to invite learning challenges.
- 8** Methods to develop autonomy, intrinsic motivation and self-regulation for high ability students with emotional or behavioral disorder or attention-deficit/hyperactivity disorder in place of extrinsic contingencies need to be explored and employed.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## **Talents in Two Places: Case Studies of High Ability Students With Learning Disabilities Who Have Achieved**

**Sally M. Reis  
Terry W. Neu  
Joan M. McGuire**

### **ABSTRACT**

---

During the last decade, increasing attention has been given to the perplexing problem of high ability students who also have learning disabilities, but problems still exist regarding the identification and provision of support services and programs for this population. This study, at The University of Connecticut followed twelve young adults with disabilities who were successful at the college level. Extensive interviews with these young adults and their parents, as well as a thorough review of available school records, provided a fascinating portrait of the challenges and problems faced by high ability students with learning disabilities.

The participants reported both positive and negative academic experiences that centered around school personnel's understanding of their needs. The positive school experiences primarily centered around individual teacher support. Both students and parents recalled specific teachers who became interested in the student or made appropriate academic accommodations including: providing extra time on tests, providing instruction in learning strategies, taking time to listen, and challenging the student in ways others had not.

Students also reported negative school experiences and difficulties which are typically associated with learning disabilities such as social problems, difficulty with teachers, and frustration with certain academic areas. These students generally stated that their talents were not addressed by the school system they attended. Parents often reported that school systems simply "did not know what to do" with their children.

Positive personal characteristics exhibited by this group included high levels of motivation. Students displayed sheer determination in accomplishing goals and seemed to possess what Renzulli has called "task commitment," defined as the energy the individual brings to bear on a specific task.

A major finding which emerged from the interviews was the positive impact of the services provided by The University of Connecticut Program for Students with Learning Disabilities. Advocacy, whether by parents or outside agencies gave the necessary support needed by these students in realizing their true potential. This research provides a fascinating portrait of the issues that must be addressed if the educational and emotional needs of high ability students with learning disabilities are to be met.






---

## Talents in Two Places: Case Studies of High Ability Students With Learning Disabilities Who Have Achieved

Conclusions

Sally M. Reis

Terry W. Neu

Joan M. McGuire

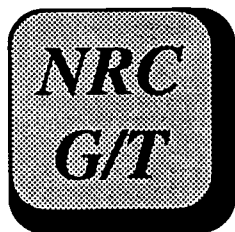
---

- 1** Many high ability students who have learning disabilities are not recognized for their gifts and may have negative school experiences.
- 2** Traditional remediation techniques like special education classification, tutoring, and/or retention offer little challenges to high ability students with learning disabilities and may perpetuate a cycle of underachievement.
- 3** High ability students with learning disabilities need support to understand and effectively use their strengths.
- 4** Lack of understanding by school personnel, peers, and self may cause emotional and academic problems for students struggling to cope with learning disabilities and giftedness.
- 5** Parents are often the only ones to offer support to their high ability children who also have learning disabilities. They can increase their effectiveness by exploring all available options and advocating for their children from an early age.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7, Storrs, CT 06269-2007






---

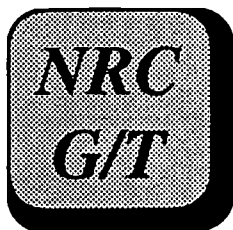
## Why Not Let High Ability Students Start School in January? The Curriculum Compacting Study

<b>Sally M. Reis</b>	<b>Karen L. Westberg</b>
<b>Jonna Kulikowich</b>	<b>Florence Caillard</b>
<b>Thomas Hébert</b>	<b>Jonathan Plucker</b>
<b>Jeanne H. Purcell</b>	<b>John B. Rogers</b>
<b>Julianne M. Smist</b>	

### ABSTRACT

---

During the 1990-1991 academic year, The University of Connecticut site of The National Research Center on the Gifted and Talented conducted a study to examine the effects of a curriculum modification technique entitled curriculum compacting. This technique is designed to modify the regular curriculum to meet the needs of gifted and talented students in the regular classroom. The study was designed to investigate the types and amount of curriculum content that could be eliminated for high ability students by teachers who received various levels of staff development. It also examined what would happen to students' achievement, content area preferences, and attitudes toward learning if curriculum compacting was implemented. To participate in this study, districts had to meet and accept the following criteria: (1) no previous training in curriculum compacting, and (2) random assignment to treatment groups. Efforts were made to recruit districts throughout the country with elementary student populations that included economically disadvantaged and limited English proficient students. Teachers in 27 school districts were randomly assigned by district to four groups, three treatment groups that received increasing levels of staff development or a control group. After receiving staff development services, teachers in each of the treatment groups implemented curriculum compacting for one or two high ability students in their classrooms. The control group teachers identified one or two high ability students and continued normal teaching practices without implementing curriculum compacting. A battery of pre and post achievement tests (out-of-level *Iowa Tests of Basic Skills*), *Content Area Preference Scales*, and a questionnaire regarding attitude toward learning were administered to identified students in the fall and at the completion of the school year. The results of this study indicate that the compacting process can be implemented in a wide variety of settings with positive effects for both students and teachers. In addition, the results expand previous knowledge about effective and efficient methods for training teachers to make appropriate and challenging curricular modifications for gifted and talented students in regular classrooms.



## Why Not Let High Ability Students Start School in January? The Curriculum Compacting Study

### Conclusions

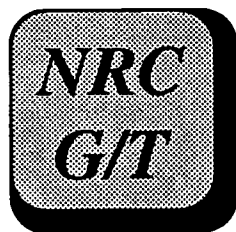
Sally M. Reis	Karen L. Westberg
Jonna Kulikowich	Florence Caillard
Thomas Hébert	Jonathan Plucker
Jeanne H. Purcell	John B. Rogers
Julianne M. Smist	

- 1** Ninety-five percent of the teachers were able to identify high ability students in their classes and document students' strengths.
- 2** Eighty percent of the teachers were able to document the curriculum that high ability students had yet to master, list appropriate instructional strategies for students to demonstrate mastery, and document an appropriate mastery standard.
- 3** Approximately 40-50% of traditional classroom material could be eliminated for targeted students in one or more of the following content areas: mathematics, language arts, science, and social studies.
- 4** The most frequently compacted subject was mathematics, followed by language arts. Science and social studies were compacted when students demonstrated very high ability in those areas.
- 5** Replacement strategies did not often reflect the types of advanced content that would be appropriate for high ability students, indicating that additional staff development, as well as help from a specialist in the district, would be beneficial.
- 6** When teachers eliminated as much as 50% of the regular curriculum for gifted students, no differences in the out-of-level post achievement test results between treatment and control groups were found in reading, math computation, social studies, and spelling.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





## ¿Por qué no Dejar a los Estudiantes con Habilidad Superior Comenzar la Escuela en Enero?

### Estudio de la Compactación del Curriculum

<b>Sally M. Reis</b>	<b>Karen L. Westberg</b>
<b>Jonna Kulikowich</b>	<b>Florence Caillard</b>
<b>Thomas Hébert</b>	<b>Jonathan Plucker</b>
<b>Jeanne H. Purcell</b>	<b>John B. Rogers</b>
<b>Julianne M. Smist</b>	

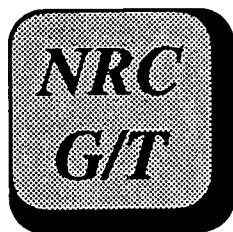
#### RESUMEN

Durante el año académico de 1990-1991, el National Research Center on the Gifted and Talented ubicado en la Universidad de Connecticut, condujo un estudio para examinar los efectos de una técnica de modificación del curriculum, llamada la Compactación del Curriculum. Esta técnica se creó para modificar el curriculum regular y satisfacer las necesidades de los estudiantes dotados y talentosos en la clase regular. El estudio fue diseñado para investigar los tipos y cantidad de contenidos curriculares que podían ser eliminados por los docentes (con distintos niveles de entrenamiento), para los estudiantes con habilidad superior. También se examinó lo que puede suceder con el rendimiento de los estudiantes, sus áreas de preferencia y sus actitudes hacia el aprendizaje si se implementa la compactación del curriculum.

Para participar en este estudio, los distritos tuvieron que reunir y aceptar los siguientes criterios: 1) no tener previo entrenamiento en la compactación del curriculum y 2) aceptar recibir tareas en forma aleatoria en los grupos de tratamiento. Se hicieron esfuerzos para reclutar distritos de todo el país con poblaciones escolares de primaria que incluyeran alumnos con carencias económicas y con limitaciones en el dominio del Inglés.

Docentes de 27 distritos fueron designados al azar para cada distrito y divididos en cuatro grupos: tres grupos de tratamiento recibieron niveles crecientes de entrenamiento y un grupo de control. Luego de recibir servicios de entrenamiento, los docentes de los grupos de tratamiento implementaron en sus clases la compactación del curriculum para uno o dos alumnos con habilidad superior. Los docentes del grupo control identificaron uno o dos alumnos con habilidad superior y continuaron las prácticas normales de enseñanza sin implementar la compactación del curriculum. Fueron administrados una batería de pre y post tests de rendimiento (fuera de nivel, los *Iowa Tests of Basic Skills*), los *Content Area Preference Scales* y un cuestionario referido a las actitudes hacia el aprendizaje para identificar alumnos en el otoño y al completar el año escolar.

Los resultados del estudio indican que el proceso de compactación puede implementarse en una amplia variedad de lugares, con efectos positivos tanto para los estudiantes como para los docentes. A su vez, los resultados amplían los conocimientos previos sobre los métodos de entrenamiento docente efectivos y eficientes para poder hacer modificaciones curriculares apropiadas y desafiantes para los alumnos dotados y talentosos en las clases regulares.



## ¿Por qué no Dejar a los Estudiantes con Habilidad Superior Comenzar la Escuela en Enero?

### Estudio de la Compactación del Curriculum

#### Conclusiones

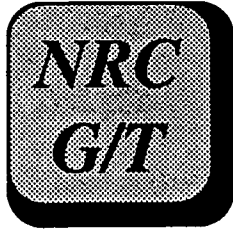
Sally M. Reis      Karen L. Westberg  
 Jonna Kulikowich      Florence Caillard  
 Thomas Hébert      Jonathan Plucker  
 Jeanne H. Purcell      John B. Rogers  
 Julianne M. Smist

- 1** El noventa y cinco por ciento de los docentes fueron capaces de identificar estudiantes con habilidad superior en sus clases y documentar sus puntos fuertes.
- 2** El ochenta por ciento de los docentes fueron capaces de: documentar el curriculum que los alumnos con habilidad superior dominaban, hacer una lista de estrategias de enseñanza para dichos alumnos y documentar un adecuado promedio estándar del dominio.
- 3** Aproximadamente el 40%-50% del material de una clase tradicional, pudo ser eliminado para los alumnos seleccionados en una o varias de las siguientes áreas: Matemáticas, Lengua y Literatura, Ciencias y Estudios Sociales.
- 4** Los temas más frecuentemente compactados fueron Matemáticas, seguido por, Lengua y Literatura. Ciencias y Estudios Sociales fueron compactados cuando los alumnos demostraban una habilidad muy superior en dichas áreas.
- 5** Las estrategias de reemplazo no siempre reflejaron el tipo de contenido avanzado que sería apropiado para los alumnos con habilidad superior. Esto indica que es beneficioso el entrenamiento adicional y la ayuda de un especialista en el distrito.
- 6** No se presentaron diferencias entre los grupos de tratamiento y el de control con respecto al resultado del test posterior fuera de nivel de Lectura, Cálculos Matemáticos, Estudios Sociales, y Ortografía, cuando los docentes eliminaron casi el 50% del curriculum regular para los alumnos dotados.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

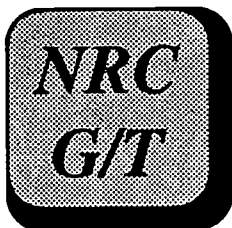
## **Building a Bridge Between Gifted Education and Total School Improvement**

**Joseph S. Renzulli**

### **ABSTRACT**

---

In this time of school restructuring, practitioners and others in the larger school community are seeking ways to improve the creative productivity and academic achievement of all students. The Schoolwide Enrichment Model (SEM) provides educators with an adaptable framework for bringing the lasting improvements to education that school personnel have sought for so long. This monograph describes three service delivery components (the Total Talent Portfolio, curriculum modification techniques, enrichment learning and teaching) and several organizational components of the Schoolwide Enrichment Model that can be used to provide high-level learning opportunities for all students. When used together, the service delivery and organizational components can bring about lasting changes in school structures, including the regular curriculum, enrichment clusters, and the continuum of special services.



Conclusions

Joseph S. Renzulli

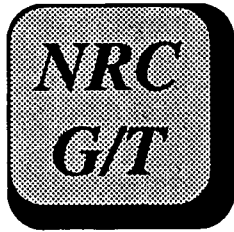
- 1** The goals of the schoolwide enrichment model are to: (a) develop the talent potentials of young people, (b) improve the academic performance of all students, (c) promote continuous, growth-oriented professionalism, (d) create a learning community, and (e) implement a democratic school governance procedure.
- 2** Enrichment Clusters are non-graded groups of students who come together during specially designated time blocks to pursue common interests.
- 3** Curriculum Modification Techniques consist of strategies to modify existing curriculum and models to guide the development of instructional units. The strategies and models are used to create opportunities for students to become first-hand inquirers, to blend content and process, and to highlight the interconnectedness of disciplines.
- 4** Enrichment Learning and Teaching is based on four principles: (a) each student is unique, (b) learning is more effective when students enjoy what they are doing, (c) learning is more meaningful and enjoyable when content and process are learned within the context of a real problem, and (d) knowledge and thinking skills acquisition are enhanced when students can construct meaning.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

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

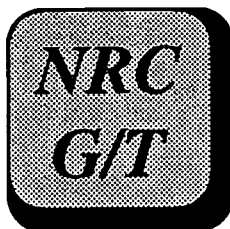
**Joseph S. Renzulli  
Brian D. Reid  
E. Jean Gubbins**

### **ABSTRACT**

---

This document reports on a national research needs assessment study which resulted in the identification of research priorities for The National Research Center on the Gifted and Talented (NRC/GT) through the year 2000. The report addresses: the scope, purpose, and mission of NRC/GT; a rationale for such research, noting six problem areas in program development resulting from limitations of previous research; the design of the needs assessment study; and the needs assessment methodology which involved surveying 13,749 individuals including teachers of the gifted, representatives of Collaborative School Districts, and members of State Research Advisory Councils. Analysis of the 5,074 returned surveys is reported, including a ranking of recommendations for research. Results suggest a need for future studies in two major categories: (1) the effectiveness of current programs, strategies, and practices; and (2) the cognitive, affective, and motivational needs of students. Specific questions related to each category are listed. Abstracts of 18 initial studies for the NRC/GT in these areas are presented. A final section presents the NRC/GT's dissemination model to facilitate the dissemination of research results.





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

Recommendations

**Joseph S. Renzulli**

**Brian D. Reid**

**E. Jean Gubbins**

The National Research Center on the Gifted and Talented has addressed six concerns related to limited progress in program development for the gifted and talented in the past. These problem areas include:

- the emphasis on trait and status characteristics to guide identification and programming practices
- the way in which research findings are translated into classroom practices
- the interaction between research studies and public policies
- the overdependence on test scores for determining the impact of educational intervention
- the lack of research studies on special populations who have historically been underrepresented in gifted programs, and the lack of studies into areas such as the arts
- the gifted student's relationship to the regular curriculum

Recommendations for Research have been developed to address the disharmony that historically exists between practitioners and researchers. A prioritized final list of general areas of recommended research includes the following:

- Impact of gifted programs on student outcomes
- Regular curriculum modification
- Teacher training/staff development necessary for curriculum modification or development
- Grouping patterns and impact on learning outcomes
- Individual vs curriculum approaches to education
- Motivation
- Effectiveness of differentiated programs for economically disadvantaged, underachieving and other special populations
- Self-efficacy
- Cultural/community reinforcement
- Policy implications
- Teachers as assessors
- Grouping by special populations
- Program options in relation to student characteristics
- Process vs content
- Use of research in assessment
- Impact/understanding of gifted/talented "differences"
- Effects of grouping on all students when gifted are grouped
- Assumptions/stereotypes of underachievement
- Student characteristics associated with success
- Cooperative learning
- Relationship between community and program



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## Cooperative Learning and the Academically Talented Student

Ann Robinson

### ABSTRACT

---

The research base on cooperative learning was examined for its applicability to academically talented students. Common types of cooperative learning are described with highlights of the model characteristics as they apply to academically talented students. The models include: Teams-Games-Tournament (TGT); Student Teams Achievement Divisions (STAD); Team Accelerated Instruction (TAI); Cooperative Integrated Reading and Composition (CIRC); Circles of Learning or Learning Together; Cooperative Controversy; Jigsaw and Jigsaw II; Group Investigation; Co-op Co-op and Cooperative Structures; Groups of Four; and Descubrimiento or Finding Out. Advantages and disadvantages of the various models for academically talented students were summarized. The weaknesses in the cooperative learning literature, as it relates to academically talented students, were also identified. Weaknesses fall into two broad categories which include: (1) lack of attention to academically talented students and (2) reliance on weak treatment comparisons to demonstrate the effectiveness of cooperative learning. In addition to an examination of the research base, two issues in practice were identified as important for academically talented students. These issues were: (1) curricular coverage and pacing and (2) group work and motivation. Finally, a series of recommendations for practice was included.



# COOPERATIVE Learning

RESEARCH-BASED DECISION MAKING SERIES

Recommendations

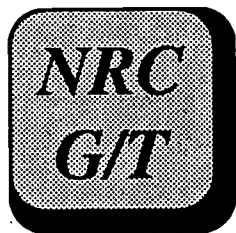
Ann Robinson

- 1** Cooperative learning in the heterogeneous classroom should not be substituted for specialized programs and services for academically talented students.
- 2** If a school is committed to cooperative learning, models which encourage access to materials beyond grade level are preferable for academically talented students.
- 3** If a school is committed to cooperative learning, models which permit flexible pacing are preferable for academically talented students.
- 4** If a school is committed to cooperative learning, student achievement disparities within the group should not be too severe.
- 5** Academically talented students should be provided with opportunities for autonomy and individual pursuits during the school day.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

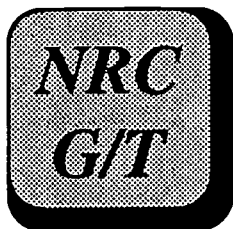
## Parenting the Very Young, Gifted Child

Nancy M. Robinson

### ABSTRACT

---

This report provides research-based answers to questions facing families of young, gifted children, and to questions often asked of preschool teachers, physicians, psychologists, and other professionals who deal with young children. Unfortunately, the database about these children is sparse and often inconclusive. The most consistent findings point to the strong influence of the home and to the extra investment parents of gifted children make, not so much in securing outside classes, but in reading to and playing with their children, enriching their experiences, and helping them focus on potential opportunities for learning. Psychological testing is advised only in special circumstances; parents can, in fact, describe their children's development rather accurately. Their descriptions provide the best basis for responsive parenting, which includes securing and creating an *optimal match* for children among their readiness, their pace of development, and their environments.



# Parenting

RESEARCH-BASED DECISION MAKING SERIES

Guidelines

Nancy M. Robinson

- 1** Gifted children show one or more abilities ahead of their peers by at least one-fourth their age. Although parents often describe them as having excellent memories, vocabularies, attention spans, imagination, and curiosity, no unique characteristic or "giftedness factor" has been identified. In metacognition, the ability to observe and manage one's own thinking, however, they may be especially advanced.
- 2** Parenting gifted young children is labor-intensive.
- 3** Some roots of high motivation and willingness to take creative risks can be found during early childhood.
- 4** We have no strong evidence that special preschools, early teaching, or computer technology significantly advance the development of gifted children.
- 5** Gifted children clearly identified during the preschool era tend to stay ahead of other children even if not quite so dramatically as before.
- 6** Gifted children are at least as varied as any other group of children.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





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

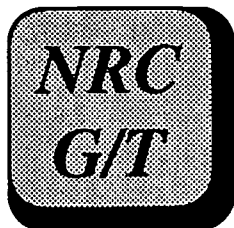
Karen B. Rogers

### ABSTRACT

In this paper 13 research syntheses were described, analyzed, and evaluated to determine the academic, social, and psychological effects of a variety of grouping practices upon learners who are gifted and talented. Three general forms of grouping practices were synthesized: (1) ability grouping for enrichment; (2) mixed-ability cooperative grouping for regular instruction; and (3) grouping for acceleration. Across the five meta-analyses, two best-evidence syntheses, and one ethnographic/survey research synthesis on ability grouping, it was found that: (a) there are varying academic outcomes for the several forms of ability grouping that have been studied (i.e., tracking, regrouping for specific instruction, cross-grade grouping, enrichment pull-out, within-class grouping, and cluster grouping); (b) the academic outcomes of these forms of ability grouping vary substantially from the effects reported for average and low ability learners; (c) full-time ability grouping (tracking) produces substantial academic gains; (d) pullout enrichment grouping options produce substantial academic gains in general achievement, critical thinking, and creativity; (e) within-class grouping and regrouping for specific instruction options produce substantial academic gains provided the instruction is differentiated; (f) cross-grade grouping produces substantial academic gains; (g) cluster grouping produces substantial academic effects; and (h) there is little impact on self-esteem and a moderate gain in attitude toward subject in full-time ability grouping options.

For the two meta-analyses and one best-evidence synthesis on mixed-ability cooperative learning there was no research reported below the college level to support academic advantages of either mixed-ability or like-ability forms. Although no research had been directed specifically to these outcomes for gifted and talented students, there was some evidence to suggest sizeable affective outcomes. Across one meta-analysis and one best-evidence synthesis on acceleration-based grouping options, several forms of acceleration produced substantial academic effects: Nongraded Classrooms, Curriculum Compression (Compacting), Grade Telescoping, Subject Acceleration, and Early Admission to College. Moderate academic gains were found for Advanced Placement. Either small or trivial effects were found for these six options for socialization and psychological adjustment.

It was concluded that the research showed strong, consistent support for the academic effects of most forms of ability grouping for enrichment and acceleration, but the research is scant and weak concerning the socialization and psychological adjustment effects of these practices. Claims for the academic superiority of mixed-ability grouping or for whole group instructional practices were not substantiated for gifted and talented learners. A series of guidelines for practice, based upon the research synthesized was included.



# GROUPING PRACTICES

RESEARCH-BASED DECISION MAKING SERIES

Guidelines

Karen B. Rogers

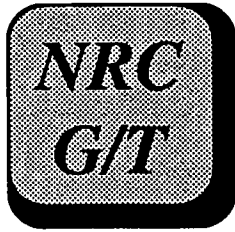
- 
- 1** Gifted and talented students should spend the majority of their school day with others of similar abilities and interests.
  - 2** Cluster grouping of a small number of students within an otherwise heterogeneously grouped classroom can be considered.
  - 3** Gifted and talented students might be offered specific group instruction across grade levels.
  - 4** Gifted and talented students should be given experiences involving a variety of appropriate acceleration-based options.
  - 5** Gifted and talented students should be given experiences which involve various forms of enrichment.
  - 6** Mixed-ability cooperative learning should be used sparingly for gifted and talented students, perhaps only for social skills development programs.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





## Creativity as an Educational Objective for Disadvantaged Students

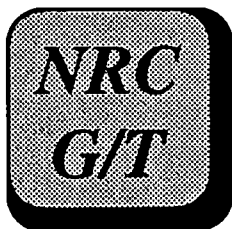
Mark A. Runco

### ABSTRACT

There are several reasons to be optimistic about the creative potential of at-risk and disadvantaged students. One reason for optimism is simply that creative potential seems to be very widely distributed. Thus some students who earn only moderate grades or have difficulties in school may very well have high levels of creative potential. As a matter of fact, except in extreme cases, a student's creative potential cannot be inferred from his or her grades, IQ, verbal ability, or academic performance. Optimism is also warranted because of the significant role played by motivation in creative performances, and because creativity is expressed in such diverse ways. Because creativity is in part motivational, educators can do quite a bit with it simply by manipulating incentives and rewards. They do, however, need to ensure that they do not undermine the intrinsic motivation of students. This is one reason the diverse expressions of creative expression are so important. Children can be creative in many different ways, if they are allowed to follow their interests. Unfortunately, there are also several reasons to be concerned about the creativity of at-risk students. These are also noted herein, the assumption being that if educators, counselors, and parents are aware of the problems they can work to avoid them. One problem is that the traits which seem to be associated with creative potential (e.g., nonconformity, independence, persistent questioning) may not be all that easy to tolerate in the classroom. Not only should such traits be tolerated, encouraged, and rewarded; they should also be modeled. In other words, educators should themselves demonstrate independent thought, spontaneity, and originality.

Fourteen specific recommendations are offered at the end of this paper. Six of these describe behaviors to avoid (e.g., relying on verbal materials, communication, and rewards; over-emphasizing structure and curricula with predictable outcomes; prejudging students who are nonconforming and find their own way of doing things; and suggesting—even implicitly—that one's own way of doing something is the best or only way). The other eight recommendations describe objectives and suggestions (e.g., follow students' own interests part of each day; encourage independent work; discuss creativity with students; tell them why it is valuable; and be explicit about how and when to be original, flexible, and independent; monitor expectations; remember that the best creative thinking is at least partly unpredictable; work to value and appreciate what children find for themselves; give both helpful evaluations and supportive valuations; inform parents what you are doing, and why; read the creativity literature; and recognize that creativity is multifaceted and requires divergent and convergent thinking, problem finding and problem solving, self-expression, intrinsic motivation, a questioning attitude, and self-confidence). The rationale for each of these recommendations is discussed, and the conclusion of this paper describes why some of the recommendations apply to all students and why several apply most directly to disadvantaged students. Keeping in mind that the target population is economically disadvantaged, the most directly applicable recommendations are those focusing on (a) stimulus rich environments, (b) nonverbal materials, and (c) independent and small group assignments.





RESEARCH-BASED DECISION MAKING SERIES

Recommendations

Mark A. Runco

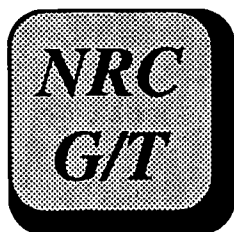
- 1** Avoid relying on verbal materials; use a variety of materials; tap various domains (e.g., music, crafts, mathematics, language arts, physical education).
- 2** Avoid relying on verbal rewards. Concrete reinforcers may be best for many disadvantaged students.
- 3** Avoid over-emphasizing structure and curricula with predictable outcomes. Ask questions that allow students to follow their own (potentially divergent) logic and thinking, even if unpredictable. Plan to follow students' own interests part of each day.
- 4** Avoid prejudging students who are nonconforming and students who find their own way of doing things.
- 5** Avoid suggesting (even implicitly) that your own way of doing something is the best or only way.
- 6** Avoid going overboard.
- 7** Allow independent work, and not just where it is easy (e.g., while working on crafts or art projects).
- 8** Discuss creativity with students; tell them why it is valuable. Be explicit about how and when to be original, flexible, and independent.
- 9** Monitor your expectations; and be aware of potential halo effects.
- 10** Recognize the multifaceted nature of creativity.
- 11** Recognize that creativity is a sign of and contributor to psychological health.
- 12** Work to appreciate what children find for themselves; give both helpful evaluations and supportive valuations.
- 13** Inform parents of what you are doing, and why.
- 14** Read the creativity and educational literature and work with others who study and value creativity.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED

The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007






---

## The Development of Gifted and Talented Mathematics Students and the National Council of Teachers of Mathematics Standards

**Linda Jensen Sheffield**

### ABSTRACT

---

Our top students in mathematics are crucial to the well-being of our country. The only way we can meet our national goal of being first in the world in mathematics and science is to raise the mathematical competence of all our students, including the gifted and talented ones.

Currently, the top mathematics students in the United States have fallen behind those in the rest of the world. These students must be nurtured and encouraged to develop their talents. The National Council of Teachers of Mathematics (NCTM) has stated in their position paper on Provisions for Mathematically Talented and Gifted Students that "while all students need curricula that develop the students' problem solving, reasoning, and communication abilities, the mathematically talented and gifted need in-depth and expanded curricula that emphasize higher order thinking skills, nontraditional topics, and the application of skills and concepts in a variety of contexts" (NCTM, 1993). In 1989, NCTM developed the *Curriculum and Evaluation Standards for School Mathematics* as guidelines for improving the mathematical competence of all our students. This was followed in 1991 by the *Professional Standards for Teaching Mathematics*, a set of guidelines designed to help teachers create an environment in which all students can develop mathematical power. In 1993, a working draft of a third document, *Assessment Standards for School Mathematics*, was developed to expand and complement the Evaluation Standards that were included in the 1989 document. The implications for the development of mathematical talent using all three sets of these Standards are included in this paper.

Mathematical talent must be identified through a range of measures that go beyond traditional standardized tests. Measures should include observations, student interviews, open-ended questions, portfolios, and teacher-, parent-, peer- and self-nomination. Recognition should be made of the fact that mathematical talents can be developed; they are not just something with which some students were born. Interesting tasks must be presented that engage students and encourage them to develop their mathematical talents.

Qualified mathematics teachers, improved opportunities for mathematics learning, and a much more challenging, nonrepetitive, integrated curriculum are needed to help students develop mathematical talents. Students must be challenged to create questions, to explore, and to develop mathematics that is new to them. They need outlets where they can share their discoveries with others.

We must act immediately on a national level to upgrade the level of mathematics being offered to all our top students from kindergarten through graduate school. Perhaps, even more importantly, we must improve the ways in which our students learn mathematics. Teachers must become facilitators of learning to encourage all students to construct new, complex mathematical concepts. Students must be challenged to reach for ever-increasing levels of mathematical understanding. We must strive to help many more students including females, minorities, and students from rural and inner-city schools reach those top levels of mathematical ability. The potential exists in every school in our country for far more expertise in mathematics, and we must help students unlock their talents in this area.



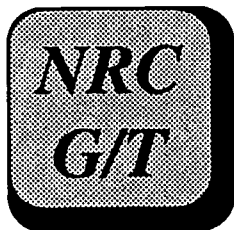
Recommendations  
Linda Jensen Sheffield

- 1** Teachers should use a variety of measures to identify mathematically talented students, tapping skills beyond computation. These students need to have a wide range of exciting math classes, math clubs, and contests where they can demonstrate and hone their mathematical abilities.
- 2** Teachers should provide all students with a wide variety of rich, inviting tasks that require spatial as well as analytical skills. Talented students should explore topics in more depth, draw more generalizations, and create new problems and solutions related to the topic.
- 3** Teachers should encourage students to persist in solving mathematical problems. Fewer problems need to be tackled, but in far greater depth. Talented students need the challenge of new and more complex problems. They need to experience the joy of solving difficult problems and be able to share that joy with others.
- 4** Teachers should encourage students to construct their own mathematical understanding, and talented students should be encouraged to reach the highest levels of construction.
- 5** Teachers should engage all students in the use of technology and manipulatives to aid in their construction of mathematical concepts. Talented students should use these materials to explore even further and to create and display quality mathematics.
- 6** Teachers need to show students examples of superior student work in order to challenge them to ever-increasing levels of mathematical achievement.
- 7** Teachers need adequate resources and support to obtain the materials, technology, and training they need to assist in the development of mathematically talented students.
- 8** Teachers, students, parents, and others in our society must be encouraged to believe that all students can learn mathematics and our talented students are capable of greater mathematical power than we have ever asked of them.
- 9** Teachers should use a wide variety of assessment measures beyond standardized achievement tests which limit mathematics to low level computation. Teachers must expect the highest levels of achievement on several types of assessment from mathematically talented students.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## Undiscovered Edisons: Fostering the Talents of Vocational-Technical Students

Lori A. Taylor

### ABSTRACT

---

The Enrichment Triad Model was adapted to include an integrated career development model, Focus On. The author proposes a broadened implementation process that takes into account the needs of students as they travel through the stages of career development. Students are provided with enrichment opportunities which broaden their exposure to fields of endeavor (modified Type I); process skills, including critical and creative thinking, specific methodological skills to a field of endeavor, and career development skills (modified Type II); and creative productive investigations (modified Type III) which can be used to explore potential career interests and allow students to see themselves in the role of practicing professionals and begin to visualize a different sense of self. In this study using the Focus On Model, significantly heightened career aspirations were found for students who had participated in creative productivity.



## Undiscovered Edisons: Fostering the Talents of Vocational-Technical Students

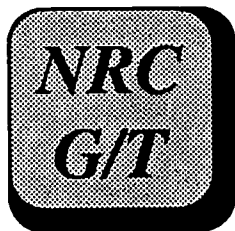
Recommendations  
Lori A. Taylor

- 1** Programs for gifted and talented individuals need to be developed around a broad conception of giftedness. Programs developed around narrow conceptions, serve narrow populations of students.
- 2** Screening needs to include the use of multiple criteria and to reflect the population that is being targeted for services. Standardized tests should only be a starting point in the screening process.
- 3** Vocational identities can be influenced by involvement in gifted and talented programming that encourages creative productivity. The process involves an interaction of abilities, creative potential, and commitment to a problem that is of interest to an evolving internal self.
- 4** The early development of a vocational identity based on narrow gender-roles, underestimation of ability, and confined social class roles can limit the range of later development and career choice. Gifted programs offer underserved populations a wider context and more in-depth experiences from which to develop a vocational identity.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

## **An Observational Study on Instructional and Curricular Practices Used With Gifted and Talented Students in Regular Classrooms**

**Karen L. Westberg  
Francis X. Archambault, Jr.  
Sally M. Dobyns  
Thomas J. Salvin**

### **ABSTRACT**

---

The Classroom Practices Study conducted by The National Research Center on the Gifted and Talented (NRC/GT) examined the instructional and curricular practices used with gifted and talented students in regular third and fourth grade classrooms throughout the United States. Descriptive information about these practices was obtained from surveys and classroom observations. This report describes the procedures used in the study and the results obtained from systematic observations of gifted and talented students in 46 third and fourth grade classrooms. The observations were designed to determine if and how teachers meet the needs of gifted and talented students in regular classroom settings. The Classroom Practices Record (CPR) instrument was developed to document the types of differentiated instruction that these students receive through modifications in curricular activities, materials, and teacher-student verbal interactions. Descriptive statistics and chi-square procedures were used to analyze the CPR data. The results indicated that little differentiation in the instructional and curricular practices, including grouping arrangements and verbal interactions, was provided for gifted and talented students in regular classrooms. Across five subject areas and 92 observation days, gifted students received instruction in homogeneous groups only 21 percent of the time, and the target gifted and talented or high ability students experienced no instructional or curricular differentiation in 84 percent of the instructional activities in which they participated.



## An Observational Study on Instructional and Curricular Practices Used With Gifted and Talented Students in Regular Classrooms

Recommendations

Karen L. Westberg

Francis X. Archambault, Jr.

Sally M. Dobyns

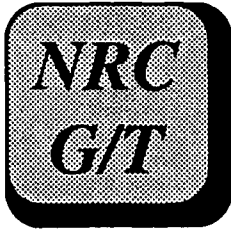
Thomas J. Salvin

- 1** Little or no differentiation in instructional and curricular practices is provided to gifted and talented students in the regular classroom whether the school has a gifted program or not.
- 2** The gifted and talented students in the study spent the majority of their time doing written assignments and listening to explanations or lectures.
- 3** No significant differences in the types of questions (knowledge/comprehension vs. higher order) were found between target students across all subject areas and sites.
- 4** Significantly more wait time was provided to target average ability students than to target gifted students.
- 5** Preservice and inservice training practices for teachers need to be modified to include specific strategies for meeting the needs of gifted and talented students in the regular classroom, along with the encouragement and opportunity to practice these strategies.
- 6** The role of the gifted education specialist should be expanded to include consultation or collaboration with classroom teachers on meeting the needs of gifted and talented students in the regular classroom.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007






---

## Recognizing Talent: Cross-Case Study of Two High Potential Students With Cerebral Palsy

Colleen Willard-Holt

### ABSTRACT

---

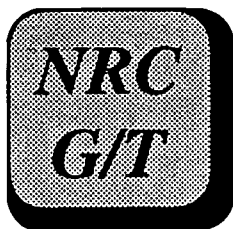
This study explored the experiences of gifted students who have cerebral palsy and are not able to communicate with speech. Qualitative cross-case methodology was employed to investigate the following questions: In what ways do these students indicate their intellectual abilities? What instructional strategies or techniques are especially beneficial in developing these abilities?

Two participants were located who met the selection criteria. One student was placed in a self-contained gifted program at the elementary level; the other was enrolled in regular and college preparatory classes at a comprehensive high school. Data collection occurred over a three-year time span, and employed these research methods: participant observation, interviewing, document analysis, audiotaping, and videotaping. Data were analyzed using analytic induction, constant comparison, open coding, axial coding, selective coding, diagramming, and cross-case analysis.

The students demonstrated the following characteristics of giftedness: advanced academic abilities (especially mathematical and verbal skills), broad base of knowledge, quickness of learning and recall, sophisticated sense of humor, curiosity, insight, maturity (shown through high motivation, goal orientation, determination, patience, and recognition of their own limitations), desire for independence, and use of intellectual skills to cope with the disability. Instructional variables conducive to the development of these skills included willingness of the teachers to accommodate for their disabilities, mainstreaming with nondisabled students, individualization and opportunities for student choice, hands-on experiences, development of thinking skills, simulation, thematic instruction, and high-level discussion.

Four assertions emerged from the cross-case analysis. In brief, these related to: (1) the difficulty in expressing and recognizing indicators of giftedness; (2) the differential impact of classroom atmosphere, structure, and instructional activities; (3) integration into regular classrooms; and (4) barriers which must be overcome in order for these students to meet their goals. Implications for educators were delineated in the hope that the abilities of more of our students may be recognized and nurtured.






---

## Recognizing Talent: Cross-Case Study of Two High Potential Students With Cerebral Palsy

Recommendations  
Colleen Willard-Holt

---

- 1** Handicapping conditions can interfere with the manifestation of typical characteristics of gifted students. Identifying gifted students with physical handicaps can be problematic.
- 2** Scores on traditional tests and inventories may be lower due to conditions like limited speech, difficulties with hand manipulation ability, or fewer life experiences due to impaired mobility.
- 3** Using developmental milestones designed specifically for children with handicaps may increase the likelihood for identification of gifted behaviors.
- 4** Programming and instruction has to be sensitive to a student's mode of communication to facilitate the expression of cognitive abilities.
- 5** A relaxed, positive classroom atmosphere that centers around respect for the student will have a positive effect on intellectual development.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007





---

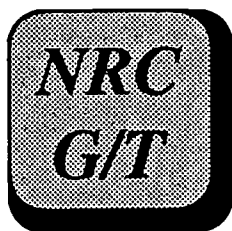
**Helping Gifted Children and Their Families  
Prepare for College: A Handbook Designed  
to Assist Economically Disadvantaged and  
First Generation College Attendees**

**Avis L. Wright  
Paula Olszewski-Kubilius**

**ABSTRACT**

---

This resource guide offers the gifted student a framework for the college search process. It leads the student and her/his family through the many aspects of choosing, applying, and attending the college or university of their choice. There are tips for parents, resource guides, and student checklists at each phase of the process. The authors stress the importance of evaluating the student's own personal resources and matching that to the most appropriate college program. Helpful time lines and clearly written definitions help diffuse the anxiety sometimes felt at this important time in the gifted student's career.



## Helping Gifted Children and Their Families Prepare for College: A Handbook Designed to Assist Economically Disadvantaged and First Generation College Attendees

Recommendations

Avis L. Wright

Paula Olszewski-Kubilius

- 1** Take time to examine your own strengths and weaknesses. Take time to find out who you are now and what your career goals are. You want to match your needs with what a school has to offer.
- 2** Colleges look at your whole high school transcript. Take challenging courses at all levels. Remember that class rank and grade point average are cumulative across all four years. Schedule standardized tests well in advance. Extracurricular activities are an important ingredient in the formula for acceptance.
- 3** There are many sources to get information about colleges and financial aid. Look in directories, write to schools, go to college fairs, talk to friends, family, teachers, and counselors.
- 4** Follow all directions on the applications; watch deadlines. Keep track of all supporting materials; give guidance counselors and other recommenders plenty of time to make deadlines.
- 5** Essays and interviews are important ways you can let the admissions committee see you as a person. Practice and preparation are keys to success in these two areas.
- 6** Weigh college acceptances carefully. Cost factors to consider include financial aid offered, tuition, room and board, fees, books, and cost of transportation. (Even if you are living on campus, how much will it be to go home for vacation?)
- 7** Look for support personnel on campus. There are offices to help with all sorts of problems, including whom to turn to for tutoring, finding a job, roommate problems, registering for the right classes, and general adjustment.



THE NATIONAL RESEARCH CENTER  
ON THE  
GIFTED AND TALENTED  
The University of Connecticut  
362 Fairfield Road, U-7 • Storrs, CT 06269-2007



---

## **The National Research Center on the Gifted and Talented**

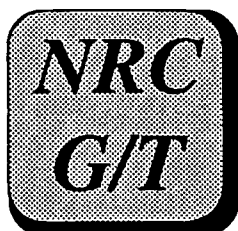
The University of Connecticut  
362 Fairfield Road, U-7  
Storrs, CT 06269-2007

### *Production Assistants*

Dawn R. Guenther  
Siamak Vahidi

### *Reviewers*

M. Katherine Gavin  
Valentina Kloosterman  
Karen Logan  
May Rizza  
Patricia Schuler



*The  
National  
Research  
Center  
on  
the  
Gifted  
and  
Talented  
Research  
Teams*

*The University of Connecticut*

Dr. Francis X. Archambault, Jr., Associate Director  
The University of Connecticut  
School of Education, U-4  
Storrs, CT 06269-2004  
860-486-4531

Dr. Alexinia Y. Baldwin  
Dr. Scott W. Brown  
Dr. Deborah E. Burns  
Dr. David A. Kenny  
Dr. Jonna Kulikowich  
Dr. Sally M. Reis  
Dr. Karen L. Westberg  
Dr. Michael F. Young

*The University of Georgia*

Dr. Mary M. Frasier, Associate Director  
The University of Georgia  
Department of Educational Psychology  
323 Aderhold Hall  
Athens, GA 30602-7146  
404-542-5106

Dr. Scott L. Hunsaker

*The University of Virginia*

Dr. Carolyn M. Callahan, Associate Director  
Curry School of Education  
The University of Virginia  
405 Emmet Street  
Charlottesville, VA 22903  
804-982-2849

Dr. Michael S. Caldwell  
Dr. Marcia A. B. Delcourt  
Dr. Brenda H. Loyd  
Dr. Kathleen May  
Dr. Claudia Sowa  
Dr. Ellen Tomchin  
Dr. Carol A. Tomlinson

*Yale University*

Dr. Robert J. Sternberg, Associate Director  
Department of Psychology  
Yale University  
P.O. Box 208205  
New Haven, CT 06520-8205  
203-432-4632

Dr. Pamela Clinkenbeard



**U.S. DEPARTMENT OF EDUCATION**  
*Office of Educational Research and Improvement (OERI)*  
*Educational Resources Information Center (ERIC)*



## NOTICE

### REPRODUCTION BASIS

This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").