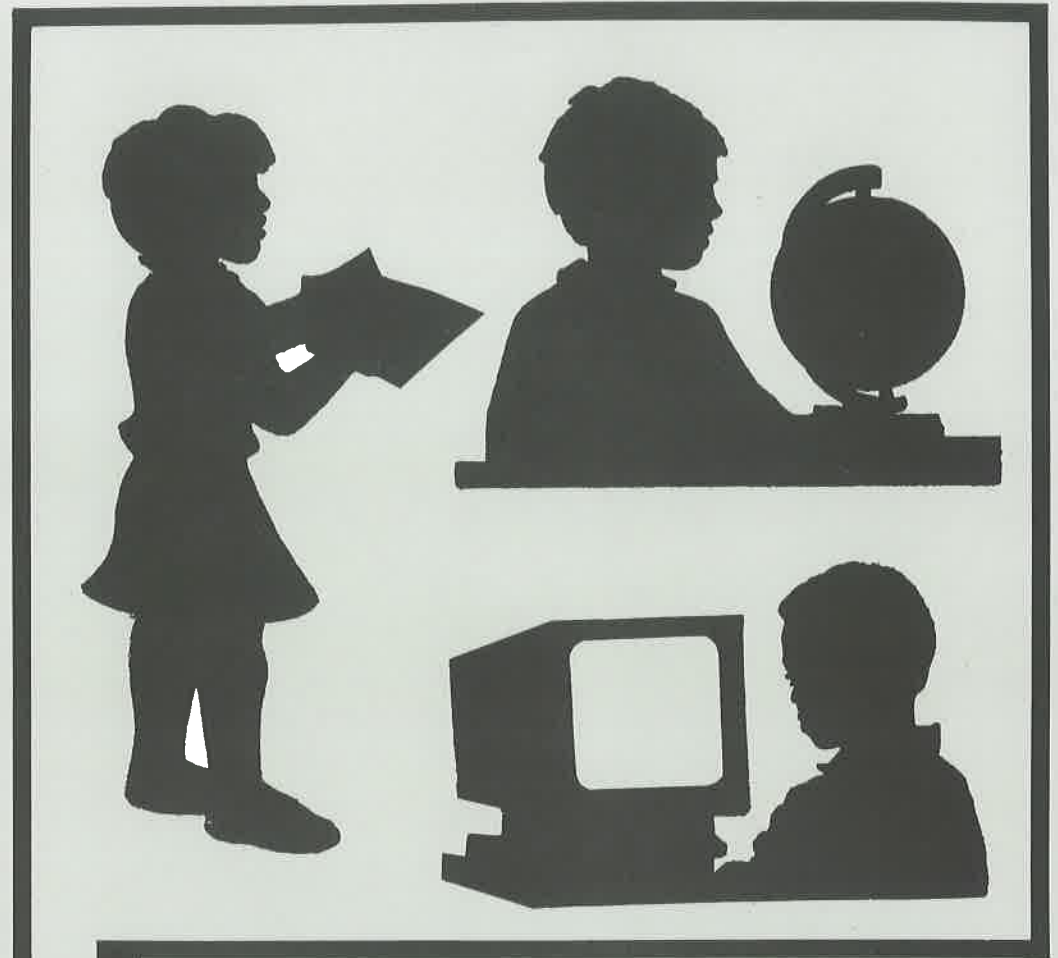


TEACHERS

IN EDUCATION



GIFTED EDUCATION

Creating A Brighter Future

- Concepts of Giftedness
- Social and Emotional Considerations
- Current and Future Programs

Issue Editors: Robert C. Morris and Barbara A. Smith

Gifted Education: Creating A Brighter Future

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Editors' Notes

by Robert C. Morris and Barbara A. Smith

This special issue of *Thresholds* deals with gifted education and is essentially an attempt to inform and up-date those most interested in the gifted and talented. This issue brings together the most current thinking surrounding issues and problems within the field. Specific attention was given toward identifying authors whose understanding and expertise have helped develop current conceptions of gifted-

ness. This issue also reflects insights into the social and emotional dilemmas inherent in the field, as well as identifying more current programs and directions available to teachers and parents of gifted.

By identifying and dealing with the above components of gifted education, we felt that interested individuals could gain a contemporary view of giftedness as well as an understanding of emerging trends. This issue of *Thresholds* is being made available to key state and federal personnel, gifted services coordinators at Educational Service Centers, coordinators of programs for the gifted and

talented, teachers of the gifted, and parent advisory councils for the gifted.

We believe that enough is known about the creative mind to logically deal with specific thought processes as well as identify appropriate skills which are helping children think in creative ways. The real task for educators and parents of the gifted, who are interested in fostering creativity in school, is to shake off the lure of the familiar and to develop a curriculum and instructional sequence that can assist learners to think in creative ways. We offer this issue of *Thresholds* as a point in time toward that end.



Ideas

Robert C. Morris is Head of the Department of Educational Leadership, Technology and Research at Georgia Southern College. His writings in the field of gifted education are a result of summer programs for the gifted and talented.

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Foreword

by *E. Paul Torrance*

The state of Illinois deserves the congratulations and appreciation of all of us, as we celebrate the twenty-fifth anniversary of programs for the gifted and talented in Illinois!

Twenty-five years ago, this was quite a large and courageous commitment for a state to make. Very few other states were ready to make this kind of commitment. Illinois was one of the first states to make this big an investment in educational programs for the gifted and talented. I guess I might say that "I was here." I was at the University of Minnesota at that time, and I made at least five guest appearances in the state of Illinois in 1963-64. The stand-out experience was the meeting for administrative personnel at Illinois State University at Normal. It was an exciting time.

Leadership personnel and experts on gifted students from Illinois were in evidence at national meetings and provided much of the leadership and expertise at these meetings. Of course, there were only a handful of people present at the Association for the Gifted and the National Association for the Gifted. Now, the National Association for the Gifted attracts about 3,000 people to its fall meetings, has inquiry groups that meet throughout the year, holds widely attended training sessions, and has a well staffed national headquarters. This organization has several awards for excellence in research, service, scholarship, and teaching.

I could point to the proliferation of training programs throughout Illinois, the United States, and the world for developing teachers, counselors, leaders, and researchers of the gifted and talented. I could point to the

proliferation of publishers, journals, youth programs, and instructional materials targeted to the education of the gifted and talented. This is staggering, but it does not tell the real story. Of course, I don't suppose the real story has unfolded yet. With the passing of twenty-five years, we have only one generation. We have to await future generations to really find out what the past twenty-five years of Illinois' investment in education has meant.

One of the most important observations that has come to my attention from programs for the gifted and talented during the past twenty-five years is that gifted and talented education has led all other areas of education in the introduction of new ideas about instructional methods, counseling, educational materials, and so forth. As the innovations have become established in programs for the gifted and talented and proved to be effective as well as exciting and motivating, they are becoming accepted in all of education. Gifted and talented students and their teachers are very generous and caring individuals. If they find that something is powerful, effective, and enjoyable for them, they seem to want to share it with others.

I would, therefore, like to point out a few of the macro-changes that have occurred in our school population during this period. I'll brag a little first, and say that one of the most important changes during this period is that children have been becoming more creative.

During the mid-1970s, it became obvious to me that children taking the Torrance Tests of Creative Thinking which were sent to the scoring service were showing evidence of higher levels of creative functioning than those from the earlier days. To investigate this more carefully, arrangements were made to test all of the sixth graders in a school where all enrollees had been

tested in 1967. On the 1976 testing, all four of the figural and all three of the verbal measures were significantly higher than in 1967 (Torrance, 1976).

In the same year, John Flanagan (1976) reported results from his nationwide Project TALENT study, in which he compared tenth grade samples of various kinds of achievement and ability. While the specific content areas fluctuated, students showed statistically significant gains in creativity and abstract reasoning over the fifteen year period. Flanagan explained these gains as possibly due to the increase of creative problem solving in the curriculum.

In 1982 (Torrance & Safter, 1986), new norms were computed for the Torrance Tests of Creative Thinking. The scoring of the figural tests had been drastically changed, so it was not possible to compare the figural scores. However, no changes had been made in scoring the verbal tests. With large samples, all scores on both forms A and B were statistically significantly higher in 1982 than in 1976, except at the senior high school level.

What has been happening to IQ (Intelligent Quotient) during this period? It has been going up, too. There is a mass of evidence available to indicate that IQ scores in the United States, when the most respected comprehensive IQ tests (the Stanford-Binet and the Wechsler) are used, are rising. Reviewing a large number of studies in the United States, Flynn (1984) reported that the gain in IQ was on the average about eight points. Lest some of you shudder to think that if intelligence and creativity continue to rise, you will be at a considerable intellectual disadvantage in 50 or so years, there is also evidence that the 'health revolution' is enabling human intellectual competency to peak later in life and to stay at or near peak levels far longer.

To recognize that both IQ and creativity is rising does not tell the

E. Paul Torrance is Alumni Foundation Distinguished Professor Emeritus, University of Georgia. He is best known as the founder of the Future Problem Solving Program and the author of the Torrance Tests of Creative Thinking.

whole story either. I was recently asked to speculate what the person of the future would be like. I based my speculations upon the evidences of the past twenty-eight years that people were becoming less brutish. I pointed to several areas where it seemed obvious that people had become less brutish and naive. I identified the civil rights area, the sex differences area, sex abuse, medicine, the tendency to negotiate dif-

ferences and conflicts, cooperation and interdependence, and freedom to choose what one wants to do and loves. There are still problems in each of these areas. In most instances, what was considered acceptable behavior twenty-five years ago is now considered brutish and naive and would not be tolerated today. It is true that evolution is slow, and patience, hard work, and creativity and intelligence are required.

However, I am optimistic that gifted and talented students are getting a richer, bigger, and more accurate image of the future. Society has always had to depend upon a creative minority for this future image. Now that this minority is larger, I have confidence that they will continue creating a better society in which all children can grow, becoming the best they can be.

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What Makes Giftedness: Translating Theory Into Practice

by Joseph S. Renzulli

In the ten years since I originally published the three-ring conception of giftedness (Renzulli, 1978), a number of research studies and theoretical contributions to the literature have provided additional support to what might best be described as a broadened conception of human abilities. The work of persons such as Torrance (1979), Sternberg (1981; 1985), Gould (1983), Treffinger (1982), Amabile (1983), Gardner (1983), Bloom (1985), Tannenbaum (1986), Guilford (1986), as well as several other writers who contributed to Sternberg and Davidson's landmark book entitled *Conceptions of Giftedness* (1986), have pointed out that the development of giftedness in young people is a complex and many faceted process. If there is one overriding conclusion that can be drawn from these more recent contributions and from the research I reviewed in the earlier "What Makes Giftedness" article, it is that procedures used to select students for participation in special programs and services must take into consideration a broader variety of factors than the abilities measured on standardized tests of intelligence and aptitude. This research has caused me to shift emphasis from the traditional concept of 'being gifted' (or not being gifted) to a concern about the development of **gifted behaviors** in those youngsters who have the highest potential for benefiting from special educational services. This slight shift in terminology might appear to be an exercise in heuristic hair splitting, but I believe that it has significant implications for the entire way that we think about the concept of giftedness and the ways in which we should structure our identification and program-

ming endeavors. We must re-examine identification procedures that results in a total pre-selection of certain students and the concomitant implication that these young people are, and always will be 'the gifted.' This absolute approach (i.e., you have it or you don't have it) coupled with the almost total reliance upon test scores is not only inconsistent with what the research tells us, but almost arrogant in the assumption that we can use a single one-hour segment of a young persons life to determine special program placement.

The strong support for a more flexible approach to identification requires that we now examine procedures for translating contemporary theory and research into functional and defensible identification practices. The purpose of this article, therefore, is not to summarize or repeat the work cited above or the material covered in my update of the original article on this topic (Renzulli, 1986), but rather to present an identification system that takes account of the several new advances about our understanding of developing giftedness that have taken place over the past several years.

The Renzulli Identification System

The ultimate value of any theory is its ability to translate research findings into defensible practice. In the sections that follow I will outline the specific steps of an identification system that is designed to translate the three-ring conception into a practical set of procedures for selecting students for special programs. The focal point of this system is a talent pool of students that serves as the major (but not the only) target group for participation in a wide variety of supplementary services. The goals of this identification system, as it relates to

the three-ring conception of giftedness are threefold:

1. *To develop creativity and/or task commitment in talent pool students and other students who may come to our attention through alternate means of identification.*

2. *To provide learning experiences and support systems that promote the interaction of creativity, task commitment, and above average ability (i.e., bring the 'rings' together).*

3. *To provide opportunities, resources, and encouragement for the development and application of gifted behaviors.*

Before listing the steps involved in this identification system, three important considerations will be discussed.

First, talent pools will vary in size in any given school depending on the general nature and ability levels of the total student body. In schools with unusually large numbers of high ability students, it is conceivable that talent pools will extend beyond the 15% level that is ordinarily recommended in schools that reflect the achievement profiles of the general population. Even in schools where achievement levels are below national norms, there still exists an upper level group of students who need services above and beyond those which are provided for the majority of the school population. Some of our most successful programs have been in inner-city schools that serve disadvantaged and bilingual youth; and even though these schools were below national norms, a talent pool of approximately 15% of higher ability students needing supplementary services was still identified. Talent pool size is also a function of the availability of resources (both human and material), and the extent to which the general faculty is willing (a) to make modifications in the regular curriculum for above average ability students, (b) to participate in various kinds of enrichment

Joseph S. Renzulli is Professor of Educational Psychology and the Director of the Teaching the Talented Program at the University of Connecticut.

and mentoring activities, and (c) to work cooperatively with any and all personnel who may have special program assignments.

Since teacher nomination plays an important role in this identification system, a second consideration is the extent of orientation and training that teachers have had about both the program and procedures for nominating students. In this regard, we recommend the use of a training activity that is designed to orient teachers to the behavioral characteristics of superior students (Renzulli & Reis, 1985).

A third consideration is, of course, the type of program for which students are being identified. The identification system that follows is based on models that combine both enrichment and acceleration, and it can be used for programs that are carried out in self-contained or pull-out programs. Regardless of the type of organizational model used, it is also recommended that a strong component of curriculum compacting (Renzulli, Smith, & Reis, 1982) be a part of the services offered talent pool students.

For purposes of demonstration, the example that follows will be based on the formation of a 15% talent pool. Larger or smaller talent pools can be formed by simply adjusting the figures used in this example.

Step 1: Test Score Nominations

If we were using nothing but test scores to identify a 15% talent pool, the task would be ever so simple! Any child who scores at or above the 85th percentile (using local norms) would be a candidate. In this identification system, however, we have made a commitment to 'leave some room' in the talent pool for students whose potentials may not be reflected in standardized tests. Therefore, we will begin by dividing our talent pool in half (see Figure 1), and we will place all students who score at or above the 92nd percentile (again, using local norms) in the talent pool. This approach guarantees that all traditionally bright youngsters will automatically be selected, and they will account for approximately 50% of our talent pool. This process also guarantees admission to bright underachievers.

Any regularly administered standardized test (e.g., intelligence, achievement, aptitude) can be used for this purpose, however, we recommend that admission to the talent pool be granted on the basis of any single test or subtest score. This approach will enable students who are high in verbal or non-verbal ability (but not necessarily both) to gain admission, as well as students who may excel in one aptitude (e.g., spatial, mechanical). Programs that focus on special areas such as the arts, leadership, and athletics should use non-test criteria as major indicators of above average ability in a particular talent area. In a similar fashion, whenever test scores are not available, or we have some question as to their validity, the non-test criteria recommended in the following steps should be used. This approach (i.e., the elimination or minimization of Step 1) is especially important when considering primary age students, disadvantaged populations, or culturally different groups.

Step 2: Teacher Nominations

Teachers should be informed about all students who have gained entrance through test score nominations so that they will not have to engage in needless paperwork for students who have already been admitted. Step 2 allows teachers to nominate students who display characteristics that are not easily determined by standardized tests (e.g., high levels of creativity, task commitment, unusual interests, talents, or special areas of superior performance or potential). With the exception of teachers who are over nominators or under nominators, nominations from teachers who have received training in this process are accepted into the talent pool on an equal value with test score nominations. That is, we do not refer to students nominated by test scores as the 'truly gifted,' and the students nominated by teachers as the moderately or potentially gifted. Nor do we make any distinctions between the two groups in the opportunities, resources, or services provided, other than the normal individualization that should be a part of any program that attempts to meet unique needs and potentials. Thus, for example, if a student gains entrance on the basis of teacher nomination because he

or she has shown advanced potential for creative writing, we would not expect this student to compete on an equal basis in mathematics with a student who scored at or above the 92nd percentile on a math test. Nor should we arrange program experiences that would place the student with talents in creative writing in an advanced math cluster group. Special programs should first and foremost respect and reflect the individual characteristics that brought students to our attention in the first place.

A teacher nomination form and rating scales (Renzulli et al., 1976) are used for this procedure. The rating scales are not used to eliminate students with lower ratings. Instead, the scales are used to provide a composite profile of the nominated students. In case of teachers who are over nominators, a request is made that they rank order their nominations for review by a schoolwide committee. Procedures for dealing with under or non-nominators will be described in Step 4.

Step 3: Alternate Pathways

Whereas all schools using this identification system make use of test score and teacher nominations, alternate pathways are considered to be local options, and are pursued in varying degrees by individual school districts. Decisions about which alternate pathways might be used should be made by a local planning committee, and some consideration should be given to variations in grade level. For example, Self-nomination is more appropriate for students who may be considering advanced classes at the secondary level.

Alternate pathways generally consist of parent nominations, peer nominations, test of creativity, self-nominations, product evaluations and virtually any of the procedure that might lead to initial consideration by a screening committee. The major difference between alternate pathways on the one hand, and test score and teacher nominations on the other, is that alternate pathways are not automatic. In other words, students nominated through one or more alternate pathways will be reviewed by a screening committee, after which a selection decision will be made. In most cases, the screen-

ing committee carries out a case study that includes examination of all previous school records, interviews with students, teachers, and parents, and the administration of individual assessments that may be recommended by the committee. In some cases, students that are recommended on the basis of one or more alternate pathways are placed in the program on a trial basis.

Step 4: Special Nominations (Safety Valve No. 1)

Special nominations represent the first of two 'safety valves' in this identification system. This procedure involves circulating a list of all students who have been nominated through one of the procedures in Steps 1 through 3 to all teachers within the school, and in previous schools if students have matriculated from another building. This procedure allows previous year teachers to nominate students who have not been recommended by their present teacher, and it also allows resource teachers to make recommendations based on their own previous experience with students who have already been in the talent pool, or students they may have encountered as part of enrichment experiences that might have been offered in regular classrooms. This step allows for a final review of the total school population and is designed to circumvent the opinions of present year teachers who may not have an appreciation for the abilities, styles, or even the personality of a particular student. One last 'sweep' through the population also helps to pick up students that may have 'turned-off' to school or developed patterns of underachievement as a result of personal or family problems. This step also helps to overcome the general biases of an under nominator or a non-nominator. As with the case of alternate pathways, special nominations are not automatic. Rather, a case study is carried out and the final decision rests with the screening committee.

Step 5: Notification and Orientation of Students and Parents

A letter of notification and a comprehensive description of the program is forwarded to the parents of all talent pool students indicating that their

youngster has been placed in the talent pool for the year. The letter does not indicate that a child has been certified as 'gifted,' but rather explains the nature of the program and extends an invitation to parents for an orientation meeting. At this meeting, a description of the three-ring conception of giftedness is provided, as well as a thorough explanation of all program policies, procedures, and activities. Parents are informed about how admission to the talent pool is determined, that it is carried out on an annual basis, and that changes in talent pool membership might take place during the year as a result of evaluations of student participation and progress. Parents are invited to make individual appointments whenever they feel that additional information about the program in general, or their own child is required. A similar orientation session is provided for students, with emphasis once again being placed on the services and activities being provided. Students are not told that they are the 'gifted,' but through a discussion of the three-ring conception and the procedures for developing general and specific potentials, they come to understand that the development of gifted behaviors is a program goal as well as part of their own responsibility.

Step 6: Action Information Nominations (Safety Valve No. 2)

In spite of our best efforts, this system will occasionally overlook students who, for one reason or another, are not selected for talent pool membership. To help overcome this problem, orientation related to spotting unusually favorable 'turn-ons' in the regular curriculum is provided for all teachers. In programs following the *Schoolwide Enrichment Model* (Renzulli & Reis, 1985), we also provide wide variety of in-class enrichment experiences that might result in recommendations for special services. This process is facilitated through the use of a teacher training activity and an instrument called an *Action Information Message* (Renzulli & Reis, 1985).

Action information can best be defined as the dynamic interactions that occur when a student becomes extremely interested in or excited about a particular topic, area of study, issue, idea or

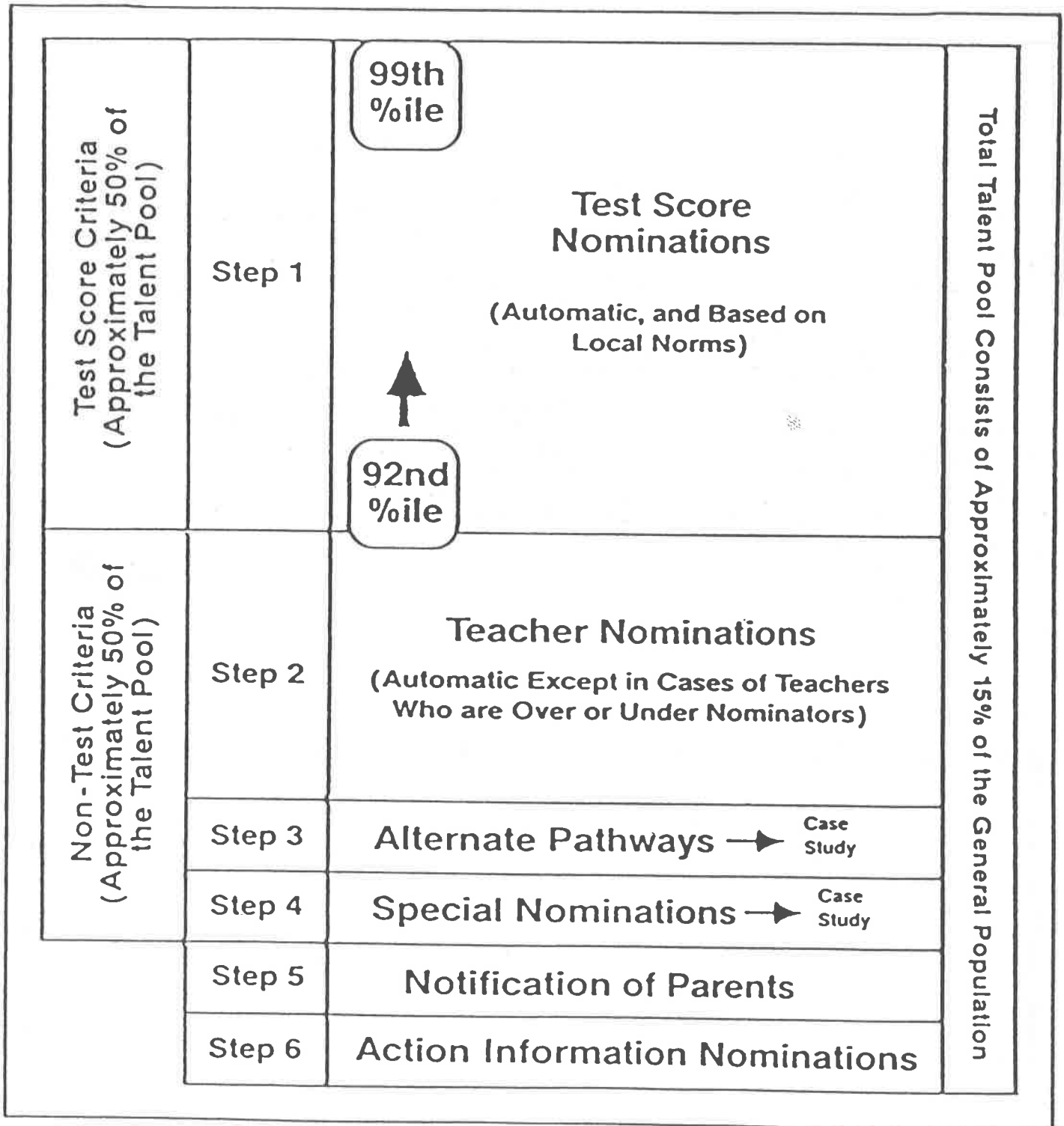
event that takes place in school or the nonschool environment. It is derived from the concept of performance based assessment, and it serves as the second safety valve in this identification system. The transmission of an action information message does not mean that a student will automatically revolve into advanced level services, however, it serves as the basis for a careful review of the situation to determine if such services are warranted. Action information messages are also used within talent pool settings (i.e., pull-out groups, advanced classes, cluster groups) to make determinations about the pursuit of individual or small group investigations (Type III Enrichment in the Triad Model).

Discussion

In most identification systems that follow the traditional screening-plus-selection approach, the 'throw aways' have invariably been those students who qualified for screening on the basis of nontest criteria. Thus, for example, a teacher nomination is only used as a ticket to take an individual or group ability test, but in most cases the test score is always the deciding factor. The many and various 'good things' that led to nominations by teachers are totally ignored when it comes to the final (selection) decision, and the multiple criteria game ends up being a smoke screen for the same old test based approach.

The implementation of the identification system described above has helped to overcome this problem as well as a wide array of other problems traditionally associated with selecting students for special programs. Generally, students, parents, teachers, and administrators have expressed high degrees of satisfaction with this approach (Renzulli, 1988), and the reason for this satisfaction is plainly evident. By 'picking up' that layer of students below the top few percentile levels usually selected for special programs, and by leaving some room in the program for students to gain entrance on the basis of nontest criteria, we have eliminated the justifiable criticisms of those persons who know that these students are in need of special opportunities, resources, and encouragement.

Figure 1
The Renzulli Identification System



The research underlying the three-ring conception of giftedness clearly tells us that such an approach is justified in terms of what we know about human

potential. And by eliminating the endless number of 'headaches' traditionally associated with identification, we have gained an unprecedented amount

of support from teachers and administrators, many of whom, formerly resented the very existence of special programs.

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Ideas

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Underachieving Gifted Students: Challenges to Common Conceptions and Practices

by Joanne Rand Whitmore

The most dramatic change in gifted education over the past twenty-five years has been the emphasis placed on potential rather than only demonstrated achievement. The consequence has been the gradual acceptance of students as intellectually gifted who have evidenced superior cognitive abilities but have failed to meet high standards of performance in school.

Awareness of the population known as gifted underachievers evolved principally from the increased practice of special education referrals for assessing 'problem behavior' or disabilities, and the increased use of standardized tests to measure academic performance. Through both avenues, students previously recognized as poor or mediocre performers on academic tasks became recognized as having superior abilities because of high test scores. In special education referrals, the identification of gifted underachievers occurred through high performance on aptitude tests that revealed intellectual abilities somewhat independent, though normally predictive, of classroom achievement. Students identified through standardized achievement tests administered in school districts were recognized because of the extreme discrepancy between their test performance and grades reflecting general classroom academic achievement.

Growing awareness of this population was confirmed by the national study of American schools conducted in about 1970. Results of that study led to an expanded definition (Marland, 1972) that conceptualized giftedness as **exceptional potential as well as demonstrated ability** in categories of behavior targeted for gifted program-

ming. However, current identification practices in schools still tend to center on high achievers, probably because they are much easier to identify. Another factor in many communities has been parent pressure on schools to serve high achievers, and teachers have tended to support the identification and inclusion of high achievers more than underachievers in gifted education programs. Nonetheless, many school districts, generally those with a substantial history of gifted education, are seeking now to find systematic ways to identify students with high potential for academic achievement and records of mediocre or poor school performance.

Identifying and serving diverse populations of gifted underachievers unquestionably is one of the greatest challenges facing the education profession in the closing decade of the twentieth century.

Identifying and serving diverse populations of gifted underachievers unquestionably is one of the greatest challenges facing the education profession in the closing decade of the twentieth century. The unrecognized giftedness in underserved populations of students, whose exceptional potential

generally remains underdeveloped as well as unrecognized, is significantly related to the rationale undergirding mandates for educational reform (Whitmore, 1988a). The essence of the educational reform movement is the belief that there are potential leaders, future inventors, and creative problem-solvers of the twenty-first century who are not being appropriately educated in American schools and, consequently, underachieve. Further, there is great concern about the educational opportunities provided 'students-at-risk,' particularly those who are from low socioeconomic, culturally different, and disabled populations, who are capable of becoming more productive contributors to our World Society in the twenty-first century than current school programs may allow.

The mandates for educational reform call for the restructuring of schools. Hopefully, such restructuring would allow more flexible accommodation of both high and low achieving gifted students, permitting them to be grouped with teachers who understand their educational needs and with intellectual peers who will stimulate their participation and growth. Specific mandates for the reform of instructional practice in schools encourage a team approach to assessment and services that would improve learning opportunities for gifted students in all classrooms, providing expanded programming possibilities and alternatives to the resource room approach to gifted education.

Educational reform mandates also call for curricular changes that include more attention to the development of higher-level thinking skills, more interactive learning through inquiry and problem solving, and increased attention to science and math instruction. Advocates intend that curricular changes would remove the lids on levels of instruction, allowing accelerated

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learners to achieve at higher levels according to their own readiness.

Key words in the dialogue about educational reform are pertinent to underachieved gifted underachievers: access, inclusion, and opportunity. Applying the principles inherent in the conceptions of school improvement, gifted underachievers would have more access to appropriate educational programs, and identification practices would not focus on exclusion. Rather, all curriculum and instruction for each child would be appropriately modified, and children could be included in G/T programs to explore the possibility that such programming might bring out his/her giftedness and lead to 'gifted behavior.'

From this contextual perspective of education reform and growing concern about underachieving gifted students, one can see that the field of gifted education may indeed be on the threshold of maturing and becoming established as a central component of American education. As such, the field may provide leadership to the reforming and restructuring of schools to assure that the brightest students, as well as others, are given optimal opportunities to fully develop their cognitive abilities and love of learning. It is very important that gifted educators recognize that potential in this historical period of American education and capitalize upon the opportunity to improve schooling for all gifted students.

Recognizing and Developing Hidden Giftedness

If one accepts the increasingly popular conception of intelligence as information processing, recognition and development of giftedness becomes dependent upon an environment that provides opportunities for students to engage in advanced, complex cognitive behavior that will allow them to manifest their gifted potential. Therefore, recognition and development of hidden giftedness are interdependent (Whitmore, 1982). Students also need opportunities to recognize the exceptional abilities within them, to develop them, and to be encouraged to demonstrate their cognitive strengths.

In this conceptual framework of giftedness as superior information processing, tests are of extremely limited value, providing only some pieces of information about student performance on specific tasks under specific conditions. In order to accurately identify more students with exceptional potential, who have unremarkable records of school achievement, one must view observational data as a principal source of information. Some guidelines for observing the cognitive abilities of students have been derived from the study of both high achieving and underachieving gifted students (Whitmore, 1982, 1985, 1986). Those characteristics which have seemed to be the most reliable clues to exceptional intellectual potential are identified in Table I as primary identifiers. Characteristics that may be reliable indicators of giftedness, but seem to be less commonly evident in underachievers, are listed as secondary identifiers. And Table II suggests key observations that can overcome obstacles to recognizing gifted potential in underachievers (Whitmore, 1985).

Schools or classrooms that invite all children to explore and manifest their cognitive abilities through curriculum and instruction and that engage them in inquiry, problem solving, critical and creative thinking will afford opportunities for skillful teachers to observe reliable indicators of 'giftedness' and refer them for formal assessment. When there is evidence of gifted potential, a student should be allowed to participate in programming for gifted students on a trial basis, if necessary, to explore further the possibility. It follows also that no child should be excluded from gifted programs simply because of poor performance on a test of aptitude or achievement if reliable indicators of giftedness suggest that exceptional intellectual ability may be present. Recognition of exceptional learning potential is dependent upon classroom conditions that not only allow but encourage high levels of cognitive performance that will reveal giftedness in time.

How Do We Search for Underachieving Gifted Students?

In order to conduct a successful search for giftedness in underachieving students, classroom teachers must be accurately informed regarding characteristics of intellectual giftedness and trained to elicit and observe those characteristics. This requires the removal of any stereotypic thinking about the nature of giftedness. Referral practices must allow school psychologists to then provide comprehensive assessments of students recognized by teachers as potentially gifted. Parents should be encouraged to provide objective information about out-of-school behavior that may inform the school personnel regarding intellectual abilities not manifested in school.

In order to search successfully for underachieving gifted students, common obstacles to their identification must be recognized and removed. Table II provides common characteristics by which underachievers have been recognized, generally leading to referral for services as learning disabled or behavior disordered.

The six characteristics listed under 'Identified UAB' represent the kind of descriptive reports of student behavior that have been associated with underachieving gifted students referred for learning disabilities or behavior problems. Students who tend to be behavior problems in classrooms are more apt to be referred for assessment and, consequently, to be recognized as gifted and underachieving. The right column, 'Not Recognized UAG,' indicates that underachieving gifted students who appear to be more average in ability, are cooperative and compliant, and manifest no emotional or social problems tend not to be recognized as underachieving or gifted.

Categories of Underachievers

There are three targeted categories of students on which school personnel must focus in the search to identify all gifted students in the system. The first category is the largest one: students lacking motivation to participate and

Table I

Identifying Characteristics of Gifted Students

<i>Primary Identifiers</i>	<i>Secondary Identifiers</i>
<ul style="list-style-type: none"> • Learns quickly and easily <u>when interested</u> • Exceptional cognitive power for learning, retaining, and using knowledge/ information • Advanced problem solving skills-- challenged by problems to solve; uses acquired knowledge and superior reasoning skills to attack, and often solve, complex problems of both a practical and theoretical nature • Oral language incorporates an advanced vocabulary used appropriately and complex language structure • Unusual comprehension of complex, abstract ideas--develops or elaborates ideas at a level not expected • High level of inquiry--the qualitative nature of questions raised and the subjects that arouse interest and sustained curiosity • Exceptional quality of thought as revealed through language and problem solving-- remarkable manipulation of abstract symbols and ideas, including perceiving and manipulating relationship between ideas, events, people; formulates principles and generalizations through transfer of learning across settings or events; reflects and reasons to gain insights and to generate solutions 	<ul style="list-style-type: none"> • Highly creative behavior in production of ideas, things, solutions; can be noticeably creative and inventive (originality); fascinated by "idea play" • A wide interest range; basically very curious • A profound, sometimes consuming interest in one or more areas of intellectual investigation • An intense desire to know and understand, to master skills and problems of interest to him/her • Shows initiative in pursuing "outside projects" and may have elaborate hobbies of his/her own choice; manifests resourcefulness and an unusual capacity for self-directed learning, though possibly only in out-of-school activities • Enjoys self-expression, especially through discussion but also often through the arts • Exhibits independence in thought, a tendency toward nonconformity • Demands a reason or explanation for requirements, limits, undesired events • Tends to be perfectionistic, severely self-critical and aspiring to high standards of achievement; desire to excel and produce • Evidences greater sensitivity and awareness regarding self, others, world problems, moral issues; may be intolerant of human weaknesses

From: Freeman, J. (Ed.), The Psychology of Gifted Children. New York: John Wiley & Sons.

Table II
Gifted Underachievers

<i>Obstacles to Identification</i>	<i>Observations</i>
<ul style="list-style-type: none"> • average or poor performance in reading and language arts • passive or negative attitudes toward school, "unmotivated" • immaturity in some or all areas of development • classroom behavior--passive, withdrawn, or aggressive/disruptive • insufficient information about the child's general knowledge, interests, language and thought 	<ul style="list-style-type: none"> • oral language--vocabulary, complexity, comprehension • communication about child's interests, knowledge, hobbies • levels of curiosity, questioning, inquiry/investigation • problem solving skills • originality and creativity • evidence of cognitive processing, thinking

From: Freeman, J. (Ed.). Psychology of Gifted Children. New York: John Wiley & Sons.

achieve in school. These students are often the most highly gifted and creative (Whitmore, 1980). Their lack of interest and participation in school is a direct function of an inappropriate curriculum that does not accommodate their learning style (Whitmore, 1986, 1988b). Because the student derives no personal satisfaction from participation, and any external awards are relatively meaningless, the student underachieves and appears to be 'lazy, unmotivated, or bored.' These students often derive greater satisfaction from other behavior such as daydreaming or socializing during class time. Sometimes they possess a narrowly focused interest that is so highly satisfying to them that they do not discipline themselves to engage in other kinds of activities (e.g., a passion for computers). Not infrequently, the student has an emotional block (e.g., fear, depression, high anxiety) that prevents the student from focusing on school tasks. Another cause of underachievement for this category of students can be values conflict. Typically, students who underachieve because of values conflict live in homes or communities where school achievement is not highly valued or the child's personal values do not include school achievement as a high priority.

The second category of underachievers are those underachieving because of a lack of environmental nurturance of their giftedness that has caused them to be unaware of their exceptional potential and the satisfaction they can derive from intellectual achievement. This category of students can be described as the 'underserved' (Whitmore, 1987), which includes students who are culturally different from the dominant student population, from low socioeconomic or educationally disadvantaged homes, and students in rural and geographically isolated locales. This category also includes females gifted in math and science who may have avoided courses, consequently leaving their special abilities unrecognized, and students who are in schools lacking strong math and science programs. Also included in this category are students who are disabled in ways that do not impair their intellectual functioning but tend to restrict their educational opportunities to remedial

education or special education programming for their handicaps.

The third category to be targeted includes those students whose giftedness is not recognized because of interfering disabilities or deficits (Whitmore, 1981; Whitmore & Maker, 1985). Many gifted underachievers have developed early patterns of poor performance because of developmental delays, particularly in psychomotor and perceptual skill areas. There also are gifted students with specific learning disabilities whose high cognitive strengths are ignored because of difficulties with reading and writing. Some gifted students are not recognized because of the behavior disorders that have evolved from emotional problems. Some students in this category suffer from minor neurological impairment, spinal cord or brain damage, sensory impairment (especially blind and deaf students), or chronic poor health. Those handicaps have tended to be the focus of educational planning and evaluation, and efforts to assess or develop cognitive strengths have been omitted from educational programming. This category of students also includes those with specific academic skills deficits, most notably reading and writing, which lower their level of performance and success in school.

Specific search techniques include preparing school personnel to conduct a successful search, initially collecting information about out-of-school student behavior, and developing program options that allow for the kind of observational assessment described above. Most important is the preparation of teachers, administrators, and school psychologists to search for underachieving gifted students (Whitmore, 1985). It is essential to conduct staff development sessions that provide accurate information regarding the nature of giftedness and underachievers, and accurate information on how to teach and stimulate students to elicit higher level abilities in specific curricular areas, and how to recognize the indicators of giftedness provided in Tables I and II.

In addition to staff development, school systems must establish policies and practices that facilitate the search. Examples of facilitative policies and practices include: grouping students

who potentially are gifted with teachers who effectively elicit and nurture higher level cognitive abilities; appropriate referral procedures and assessment methods; provision for trial placements in gifted programs to explore student characteristics; flexibility within the school structure to allow a variety of programming options; and ongoing evaluation of student progress and program effectiveness.

Recognizing that many students within our schools possess much higher intellectual abilities than are manifested under current educational practice is essential to both the pursuit of school reform and to the appropriate development of higher school achievement in intellectually gifted underachievers.

In order to effectively search for gifted underachievers, school psychologists must be given the time, resources, and encouragement to complete accurate and thorough assessments of each child described by teachers as manifesting characteristics of potential giftedness. It also is important that school psychologists be better prepared to conduct such assessments of gifted students than most training programs seem to provide currently. The school should intentionally conduct a program of information collection about students that includes not only

standardized testing but objective reports from parents and student self-reports.

Conclusion

In conclusion, the reconceptualization of giftedness to include those students with exceptional potential for intellectual achievement provides schools with an important opportunity to address the major issues regarding school improvement or educational reform. As schools provide program options to meet the needs of children with diverse kinds of giftedness, cluster students

with similar needs with teachers skilled in addressing those needs, explore abilities within students through trial inclusion in special programs, and focus in classrooms on eliciting higher level thinking skills, the overall outcome will be improved curriculum and educational opportunities for all children in the schools.

Recognizing that many students within our schools possess much higher intellectual abilities than are manifested under current educational practice is essential to both the pursuit of school reform and to the appropriate development of higher school achievement in

intellectually gifted underachievers. Thus, the knowledge we have about underachieving gifted students challenges us to be sure we operate our schools consistent with new conceptions of giftedness and engage in practices that increase the probability of discovering and developing giftedness in all types of students. It is exciting to be on the threshold of providing better educational opportunities for all school children, but it also demands highly disciplined efforts to achieve widespread changes in thinking and professional practice.

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Ideas

Gifted Youth and Self-concept

by *Judy Galbraith*

Special acknowledgment: During the preparation of this article, I talked with Joel Anderson, a proactive counselor of the gifted in St. Louis Park, Minnesota. Joel has been working with gifted junior and senior high school students, in groups and individually, for eight years. Because of Joel's daily contact with gifted youth, I decided to corroborate my observations and research with his day-to-day experiences.

This article is therefore a compilation of Joel's and my experiences and recommendations for exploring and developing two themes affecting the self-concepts of gifted youth. It also offers a view of gifted youth and self-concept as expressed by young people themselves.

I wish parents would let you be what you want to be rather than what they want you to be.
Steve, 14

I had two choices today. I could go to the gifted program, miss my science class, and take an F on the test I'd miss because the teacher informed me that I wouldn't be allowed to make it up. Or, I could go to class and take the test, and miss out on the opportunity the gifted class had to offer. Some choice!
Janine, 15

My dad always says, "You have to do the right thing now or you're going to screw up the rest of your life! Listen to me because I know more than you do." I wish he would stop be-

cause it makes me feel like I can't make any decisions for myself!
Beth, 15

Some kids think that because I'm in the G/T program that it means I'm better than they are. I don't feel that way at all. I wish they knew how hard I work to cultivate my talents. Then maybe they'd accept me better.
Danny, 15

I admit it. I've become a cynic by virtue of what I do for a living. I receive a constant barrage of problem-related communications from gifted kids.

While the majority of gifted kids say there are more pluses than minuses to being gifted, they also say that the advantages only manifest themselves after high school! For every self-assured and well-adjusted student I've encountered in a classroom or workshop, there is another one who is insecure, lonely in distress—or one who is being discriminated against. And they need help! Ultimately, as parents or professionals, we're faced with a dichotomy.

On the up side, it is important to recognize and remember that there are many gifted, creative, and talented youth who feel pretty good about themselves and life. They've acquired, (hopefully with your or some other caring adult's assistance) effective life skills: they take advantage of school; they have the support of friends and family; and for the most part they make pretty good decisions for themselves. A recent example of this was reported by "Who's Who Among American High School Students." Their "19th Annual Survey of High Achievers: Attitudes and Opinions From the Nation's High Achieving Teens," reported that "more

of our nation's brightest teens are saying no to drugs."

On the down side, we all know gifted youth who are underachieving, unhappy, lonely, insecure or obnoxious and who have few, if any, positive life skills.

It's depressing to learn that the number of high achieving teens who contemplate and attempt suicide continues to increase. And this is just one indicator of how much more we can and should be doing in the area of social and emotional awareness and growth.

Cited most frequently as the factors that high achieving teens believe contribute to suicide (19th Annual Survey of High Achievers) were:

- a feeling of personal worthlessness (86%)
- a feeling of isolation and loneliness (84%)
- pressure to achieve (71%)
- fear of failure (65%)

One of the main issues affecting self-concept and the gifted involves feelings of isolation.

More than ever, gifted, creative and talented youth (like all youth) need to be heard. They need our understanding, guidance counseling and empathy as much as our advanced placement courses, academic enrichment classes and higher level thinking skills exercises. More than ever they are crying out,

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often in self-destructive ways, to be taught not only how to use their intellects, but to learn about who they are, how they relate to others, how to cope with life, and how they fit in to the world around them.

Isolation and the Gifted

One of the main issues affecting self-concept and the gifted involves feelings of isolation. Giftedness, talent or creativity may set young people apart from peers at a time when peer acceptance and the pull to be 'normal' is greatest. While giftedness and participation in special programs often provide opportunities and/or leadership roles, it can just as often lead to feeling different. And this difference often develops into feelings of inadequacy or 'weirdness' rather than a positive self-understanding and excitement about who we are.

The most frequent remarks from students regarding their feelings of isolation or alienation are:

I feel as though I'll never fit in any place, no matter how hard I try.

Basically, the challenge in my schooling has not been academic, but having to conform—to be just like everyone else in order to be accepted.

Sometimes people get jealous of me and they give me the brush off for being able to do things well. It's upsetting, and it makes me mad. I wish they'd just accept me for who I am.

Everyone teases me about being a 'genius' no matter how hard I try to fit in.

Others have reported being taken advantage of. On being asked 'What shakes your self-esteem?' one teen-age boy reported:

I hate it when people use you. For example, if you have an incredible vocabulary and someone wants your help writing a speech, and then later they tell you to get lost.

How Can We Help?

There are those who suggest that if we don't label gifted kids, they won't feel different. Nothing could be further from the truth. When asked, most gifted students can report early memories of feeling different from peers—long before they were 'officially' identified. But the labels themselves don't mean as much as our attitudes about them, and more importantly, the decisions we make, positive and negative, based on those attitudes.

Labels are a part of life. They help us to understand and to communicate. Labels help us put words to our experiences. As adults in positions of power, we can foster an environment of acceptance or rejection of labels. When we, on a personal level, accept high intelligence, creativity, and talent as positive and desirable qualities, then so do the young people we live and work with. When we don't, they don't, and it's as simple as that.

*Just being together
in a group helps
gifted kids feel less
isolated.*

Gifted kids feel relieved and inspired when they know that someone understands and values them for all that they are. And giftedness is a significant part of who they are. When developing your curriculum, keep in mind that:

- Young people benefit by opportunities to learn about giftedness, intelligence, learning styles, and talent.
- Young people are comforted by discussions with peers and adults about the challenges—positive and negative—that accompany high potential.
- Young people are inspired and challenged by oppor-

tunities to meet and/or work with people in the community who have gone on to gifted adulthood.

The following comments were made by students after participating in discussions with peers and educators to learn more about their qualities, and after hearing others talk about gifted issues:

I don't know if I really changed after having these discussions, but I feel a lot more secure about myself now.

Kevan, 15

When we studied learning styles, I learned a lot about myself, I improved my school work, and I learned to be easier on myself.

Jerod, 17

Knowing that I truly have a lot of potential makes me feel great! I wish more people understood what giftedness means because it's something wonderful. It's nice to know that I don't have to hide it in here.

Courtney, 11

I used to think that I didn't belong in the gifted class because I'm such a terrible speller. Now I know that being gifted doesn't mean being good at everything and I'm relieved.

Katie, 12

I used to think I was weird or something. Now I know there are lots of people like me and I'm not a weirdo after all.

Chad, 10

My heart is full of gratitude for my teacher who first wanted to have me tested for the gifted program. I'm not trying to brag, but I'm really glad there's a class for people like me. We may seem peculiar or odd, but at least we have fun and we respect each other's talents.

Kristen, 12

All of us benefit by knowing that we're not alone. In fact, the most common positive remark I hear in letters from gifted kids can be summed up in this short phrase: I'm so glad to know I'm not the only one!

Just being together in a group helps gifted kids feel less isolated. Having a support group, coupled with opportunities to discuss gifted issues supports young people in making mature life decisions.

Expectations and the Gifted

A second leading issue affecting the gifted and self-concept involves expectations—ours and theirs! While doing research for *The Gifted Kids Survival Guides*, hundreds of students reported, "Parents, teachers and even friends expect me to be perfect, and to do my best in everything all of the time." This 'gripe' continues to surface as more and more gifted programs develop. The private and adult admonition is: "Now that we know you're gifted, you dam well better produce (or else!)." The following student testimonials document a range of concerns related to expectations:

People expect me to not only do well in school, but to be a perfect person as well. It's a lot of pressure, and I don't think it's fair.

Janice, 15

Anything less than an A+ is failure to me.

Chris, 12

If I get As and Bs it's a good job. But my brother gets congratulated all over if he gets an A. He gets a celebration.

Regan, 14

Sometimes I learn things so quickly, and other times I just don't get it. When that happens I really wonder if I'm so 'gifted' after all.

Brad, 13

Some parents think that just because you're gifted you should be a super-babysitter, too!

Valerie, 12

When I ask groups of gifted students, "Who has the highest expectations of you?" the older they are the more likely it is they assume full responsibility for expectations. More often than not they answer, "The person who has the highest expectations of me is me!" When I ask younger students the same question, they are more likely to identify a parent, teacher or peers.

Regardless of whether the pressure to be perfect comes from internal or external sources, the problem warrants our attention.

Perfectionism, or the tendency to set unrealistic goals, can lead to a combination of physical, mental, and emotional problems.

In discussion groups young people have said, "I worry about hitting a wall where things don't come easy for me anymore...where I don't get straight A's. I wonder when it's going to happen. In high school? In college? What happens when I just can't grasp things anymore? Or when I can't outdo myself anymore?"

These concerns, when combined with the high-intensity and fast-paced lifestyle of gifted and talented young people, make it easy to see why gifted youth often feel pressured to be all things to all people, and all things to themselves.

How Can We Help?

Begin by offering young people alternatives to perfectionism and setting unrealistic goals. Following are suggestions for getting started:

1. *Help students to recognize the differences between perfectionism and the healthy pursuit of excellence.*

For example: Perfectionism means feeling badly about yourself because you got a B+ instead of an A in a new

class you took. A healthy pursuit of excellence means thinking more of yourself for taking a new and challenging class whether you got an A or not.

2. *Lead a discussion to uncover the sources of perfectionism.*

Ask students to identify people who have unrealistic expectations of them. Then, have them list the messages they hear that leave them feeling as though nothing they do will ever be good enough.

3. *Generate, individually and as a group, suggestions for defending themselves against people who pressure them to be perfect.*

Encourage students to focus on how they feel, and what messages parents, teachers or friends could give that would be helpful, as opposed to discouraging or critical.

4. *Offer students opportunities to take risks, make mistakes, and to 'fail' in a non-graded environment.*

Let them experience learning for learning's sake with no strings attached! (I actually heard of a teacher who gave letter grades to student's journals!)

Finally, when we encourage gifted young people to talk about their feelings of isolation, expectations, or other self-concept issues, we are better able to meet their needs. After all, who knows more about gifted kids than gifted kids themselves? And besides, teaching is much more rewarding and fun when it's a 50/50 proposition.

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Ideas

Parenting Gifted Children

by Philip A. Perrone

What can you do with a child who...?

Over the past 25 years thousands of parents have initiated a conversation with these words either in person, by phone or by mail. During the first fifteen years, the question was invariably raised by a mother regarding either a son who was between the ages of eight and twelve or a pre-school boy. In recent years, an increasing number of others are asking this question; and more daughters have become the subject. The 'child's' age now ranges between six months and 25 years, and more concern is expressed by parents of adolescents.

The areas concerning parents are: the school—usually the focus is more on instruction than curriculum; the child's relationship with parents and siblings, usually around issues of respect, obedience and territory; peer relationships where the concern is with either too little or too much; and the child's self-esteem. Underachievement is another major concern which seems to be resolved when the other concerns are addressed.

My typical response is to ask parents to tell me more about their child. In addition to seeking information about the child's age, sex, interests and behavior from the concerned parents' perspective, I'm listening to the emotional tone of the response. Is the parent in control or is the situation at the desperate stage? Do parents see their child clearly or is their vision clouded by the child's giftedness? Are parents expecting or demanding too much of their children and of themselves? Are they overcontrolling? Do they need their child to be gifted?

I then ask parents to provide a brief history of their child's behavior. My

purpose is to learn how long they have been concerned, what they have already tried, if there have been any traumatic events in the child's life, or if the 'problem' is a normal developmental task being undertaken by a gifted child in an atypical manner.

My thoughts then turn to the relationship between the parents and between parents and teachers. It is helpful to know if this is a two parent family, if parents share responsibility for child rearing or if it's a single parent family or step-family. Other questions which come to mind are who nurtures the child's giftedness and what is the nature of the parent-child communication?

The social, psychological and emotional adjustments gifted children and adolescents are forced to make in response to pressures to be normal and to be average, require both parental understanding and sensitive parental intervention.

Another question parents frequently ask begins with, "How can I make sure my child...?" Questions like this usually seem to stem from the parents'

own childhood. For high school students, and sometimes even pre-schoolers, parents are concerned with whether their child will be admitted into one of the 'best' colleges. I seldom hear parents ask whether their child will graduate or even be happy attending one of the 'best' colleges.

I can't help but wonder if parents had negative experiences as gifted children or gifted adolescents, if they have failed to work through any negative experiences and therefore, are vicariously attempting to resolve their problems through their children.

If parents haven't worked through unpleasant experiences from their own past, counseling really would help. Sometimes I recommend family counseling but individual or couple counseling and Parent Effectiveness Training may be more appropriate. Parent support groups, led by a psychologist who understands giftedness could also be beneficial.

I've seldom met confident parents, particularly parents of the gifted. Even self-assured persons can be brought to their knees when faced with parenting the gifted.

A parent support group should address several value-laden questions. What do I want for my child? Do I have a life-script in mind for him/her? Are my parenting behaviors directed toward trying to insure my child excels in everything? When should my child have a say in directing the course of her/his life? Do I trust my child? Do I really listen? Am I willing and able to negotiate? When my child begins to assert her/himself, how will or do I respond? How will/do I feel when this happens? What will I do with my life as my parenting role lessens?

Parents of gifted children, similar to parents of other special education children, will benefit from participating in a support group which addresses questions like these. Periodic meetings

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at critical points in the child's life would help parents cope better with some of the more significant changes in their child's development.

Among the more critical changes in the development of gifted individuals occur upon: entering school, beginning psychological adolescence around third or fourth grade, all throughout the middle school years, beginning high school and the time when post-high school plans are being formulated.

The social, psychological and emotional adjustments gifted children and adolescents are forced to make in response to pressures to be normal and to be average, require both parental understanding and sensitive parental intervention. Around fourth grade, or possibly sooner, the gifted child becomes more socially assertive. It is difficult for any parent when children begin adolescence, but it is particularly difficult when the gifted adolescent is neither socially nor physically 'into' adolescence. Frequently, parents become the target of the frustration gifted children ex-

perience at this stage in their development.

Middle school is a time when acceptance into a peer group is the number one priority while being identified as gifted is the last thing a child wants or needs. The middle school years may be the most trying time for gifted adolescents if parents and teachers do not understand and empathize with the social and psychological struggle children/adolescents are experiencing. Parents are likely to focus more on grades and getting ready for high school and even college. Adolescents will likely be most concerned with their appearance, being accepted, talking on the phone, and being their own person. Parents seemingly cannot help but anticipate what will happen next year and beyond if high grades aren't achieved and maintained. Adolescents live primarily for today while parents seem preoccupied with the future. It is necessary to share the same time frame to communicate effectively.

Another question parents should be asking is what kind of guidance they

will provide their child. Love, emotional support, recognition of a child's individuality and provision of 'space' so a child can learn from mistakes are all important. Having an opportunity to learn from mistakes is particularly critical in order for children to develop wisdom, patience and willingness to take risks.

Parenting gifted females differs from parenting gifted males particularly because social mores and social pressures mitigate against female assertiveness and individuality which gifted females are likely to evidence.

It isn't easy being a gifted child and parenting a gifted child can prove equally difficult. There is no 'Spock' to suggest how parents should behave when faced with a new or difficult challenge. Parents' survival kits need to include patience, wisdom and humor. Check your parental survival kit regularly to see that you aren't running low on any of these essentials, and if you are, seek out the support necessary to keep on ticking.



Cultivating Courage, Creativity and Caring*

by James T. Webb

At least since the 1800s creativity has been considered a legitimate field of study, if a puzzling one (Tannenbaum, 1983). Investigators seem to recognize creativity only after it has occurred, but have difficulty defining it and predicting who will demonstrate it. In early studies, creativity often was treated as being synonymous with intelligence. More recently, creativity has been considered a separate, but related, area of study. During the past 30 years, research has shown that when IQs are in the gifted or higher range, intelligence and creative ability are generally independent of one another, and that neither can be measured adequately by the same test (Sattler, 1988; Tannenbaum, 1983). Few persons disagree, though, that usually one must have at least above average intelligence in order to be thought of as creative (Amabile, 1983).

That is not to say that persons who are less bright are never innovative or creative. Certainly they are. But their creativity is occasional, rather than frequent or constant, and their mental leaps to make creative connections are typically far more modest. Like the concept of intelligence, creativity is relative. That is, almost none is without intelligence (although I have had my suspicions from time to time about a few people I have met). Similarly, most people have at least some creativity, although some people clearly have more than others.

Working with partially acceptable definitions of creativity and intelligence, we struggle to make these con-

cepts more precise, and indeed we must. The topics are too important to too many people to shelve until we resolve philosophical disagreements. Intelligence and creativity both involve the ability to profit from past experiences. However, intelligence (at least as measured by our current intelligence and achievement tests) rests more heavily in memory and on convergent and culturally typical thinking, whereas creativity implies divergent thinking and the ability to develop knowledge, patterns or relations new to the culture or the situation (Sattler, 1988).

Some disagreement exists as to whether or not new creative knowledge must be socially useful. Frank Barron (1969), a psychologist pioneer in creativity research, stated that the achievements in creativity must not only be original, but must also make a meaningful contribution to the culture. In my own opinion, I believe we must consider the creative process as a potential, separate from, but underlying, actual creative behavior. That is, the potential may—or may not—become manifest in socially beneficial behavior, but is creative nonetheless. For example, the creativity shown by elementary school children is seldom socially beneficial (some would call it socially detrimental), but it is creative nonetheless. We should not confuse the product with the process. If we focus on the process, we can then contemplate the cultivation of creativity so that long-term beneficial products might result, rather than passively hoping that creative products might develop *au naturel*.

Within the field of gifted education, creativity is perhaps most often considered in the context of Renzulli's triad of giftedness ingredients (Renzulli, 1981). In his triad, Renzulli presents

three overlapping circles, each representing a key component. These three ingredients are above average ability, creativity, and task commitment. According to this model, only when all three characteristics are present in substantial quantities at the same time is a person labeled as gifted.

I partially disagree with the Renzulli model insofar as it has been used to identify students to receive differential education because this model, in my opinion, tends to overlook youngsters who are underachieving. That is, this model would exclude children with high intellectual ability and high creativity, but who lack motivation (i.e., task commitment) and are unwilling to show their ability in the ways we choose to measure it. Thus, our school programs for gifted students often fail to include the very students of high ability who need our help the most, namely those not living up to their potential. Instead, we concentrate our time and resources on students who conform and make our school systems look good, and treat gifted education as an honor to be earned through performance rather than simply as an appropriate educational placement (Kleine, 1987).

Nonetheless, Renzulli's triad has focused needed attention on key dimensions needed by gifted students to function successfully in our culture. Even so, in working with the Renzulli triad I have often felt that we were overlooking still other critical dimensions, particularly in the social and emotional functioning of gifted children and adults. In this article, I will focus on two such critical elements, and propose that these two key dimensions be added to make the triad a pentad. Without these two, I believe that a gifted person will be limited and

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even handicapped. These two ingredients are 'courage' and 'caring.'

In concentrating on the cultivation of courage and caring, I wish to emphasize their interaction with creativity, and will omit considerations of motivation even though I strongly feel that we also can cultivate and develop motivation. I will likewise omit discussion of high intellectual ability, even though it is fundamental, since I feel there is only a modest amount we can do to cultivate native intelligence (at least with our current knowledge) for children beyond age eight (Bloom, 1964). We know many things we can do which will dramatically lower intelligence, for example, lead poisoning, child abuse, brain injury, etc. Contrastingly, there are comparatively few things we can do to cultivate and significantly raise intellectual potential. Infant and pre-school stimulation clearly have an impact (Berrueta-Clement, Schweinhart, Barnett, Epstein & Weikart, 1984), but we have not yet clearly delineated how much stimulation helps a child to develop potential as distinct from pressuring the child unduly. Thus, I will emphasize creativity, courage and caring since these three are all characteristics which can be influenced and developed in gifted children, and which need increased emphasis by parents and professionals alike.

Certainly, courage and caring are not limited to persons of higher intellectual or creative abilities. But there is a particular need to develop courage and caring within our bright children, even moreso because of the prevailing myth in our society that these children do not need any special help, and can make it on their own (Webb, Meckstroth & Tolan, 1982). Caring and courage are not automatically going to settle lightly upon the shoulders of our children just because they are gifted. Perhaps our gifted children, particularly those not yet identified as such, are even less likely to acquire courage and caring because of our neglect and lack of understanding of them.

Specifically, I think there are particular issues concerning courage and caring that arise because one is gifted. It is widely recognized, for example, that gifted and creative children are intense, that being creative implies being non-conformist, and that the interests of

these children often differ from their age peers. So often they are faced with trying to figure out "Where do I, in the upper 3%, fit in a school system with a lock-step curriculum that is primarily designed for the other 97%, and in a system where conformity and mediocrity are valued more than intellectual curiosity and creativity" (Webb et al., 1982). Leta Hollingworth (1975) likewise noted that many gifted children must learn to control their impatience, and somehow learn to feel less like an alien.

What is courage? Creativity? Caring? All are personal qualities that are difficult to quantify, although we all share some common idea of what they are. Creativity is basically that quality which is necessary to produce original ideas in any field. It is a quantity that leaves us discontented with the status quo. Courage is that quality of mind which meets opposition or danger with calmness and firmness. It allows us to act even when we are unsure or afraid. Caring is that mental quality of having compassion, concern or interest in someone or something outside of ourselves.

I do not believe that these qualities are innate, even though people may be born with certain predispositions for more or less of each. Instead, like most other human behaviors, they are learned if they are nurtured in the beginning stages of development and if given the opportunity to be practiced.

But how much of each is needed? What is the perfect balance? How do you balance them within yourself? Probably there is not a perfect balance, although we certainly need at least a modicum of all three. However, depending on the amount of our courage, the depth of our caring, or the facileness of our creativity, our lives will be quite different. Probably the balance and proportion of these three within each of us will shift at different times in our lives, depending on the opportunities we have to develop these traits, the preparation we have had to allow further growth, and the life situations we face. Perhaps there is a natural shifting in the balance at different times in our lives as we mature and gather perspective from life experiences. For example, I suspect that courage and caring for most of us has increased as

we get older, though I am not sure about creativity.

What happens if there is an imbalance? What happens in a bright, intense, motivated person who is lacking in courage, or in creativity, or in caring? In my experience, the most obvious imbalances regard courage and caring. Perhaps that is because a lack in creativity doesn't get people into trouble nearly as quickly as lacking courage or caring. Also, it frankly seems easier for many people to be creative than to be courageous or caring since creativity can be a very private endeavor thereby having fewer risks.

Although all three are dimensions which vary in degree, for clarity I shall focus on extremes. What happens, let's say, when one is creative, but lacking in courage or caring? Novel games and creative fantasies can be invented in a moral or ethical vacuum without regard for the impact on others. Sometimes these persons become what I call the 'Trivial Pursuers.' I have mixed feelings about trivial pursuers. Some of them give us pleasant pastimes that help us keep our sense of humor and perspective, and we badly need a sense of humor—even more so if the world around us seems tragic in so many respects. Other trivial pursuers simply escape by playing non-productively with their ideas in self-absorbed narcissism.

Other such persons become 'Indifferent Investigators.' They create just to see what will happen, typically with benign, or sometimes accidentally helpful, results. Still others, like the Nazi concentration camp doctor, Joseph Mengele, indulge their creativity with no regard for others. It amazes me that so many of our current researchers still adhere to the dictum of creating knowledge for knowledge's sake, with little regard whether their efforts are trivial or even hazardous.

Fortunately, most gifted individuals at some point in their lives find such narcissistic creativity in a moral vacuum to feel very hollow. They realize that anything not worth doing is not worth doing well. Their creativity does not seem to be valuable if it was developed without values that have much meaning for existence. It is indeed fortunate for our world that gifted children generally move quickly toward

the upper levels of moral development described by the ethicist, Kohlberg (1964). That is, most gifted persons reach a point of being personally concerned with universal principles, morality, consistency and principles of conscience. Although only about 10% of our general population reaches the level of these concerns, and then typically in middle age, the intellect of most gifted individuals stimulates them to reach that point, and I believe to reach it earlier than others.

However, some creative persons do not reach these levels, or are delayed in development. These gifted persons are of even greater concern when they have developed courage but little, if any, caring. I could call this pattern either the 'Brave Machiavelli' or the 'Gifted Terrorist.' Bright, courageous, intense—this brave Machiavelli has much creativity, but little compassion or empathy. In simplest terms, "he wants what he wants when he wants it!" His creativity is directed primarily at new and better ways to get what he wants or to control others. People are objects to be managed or manipulated. I'm sure that all parents, particularly of teenagers, feel that I am talking directly about their children. Fortunately, I am not, although most teen-agers do go through a protracted period of narcissistic self-absorption. Instead, I have in mind adults who never progressed to a balance, or lost the balance they once had. For example, I feel sure that Hitler was highly creative and even courageous. Likewise was Idi Amin. On a more local level, we see this pattern in our gifted juvenile delinquents or our adult criminals, and even in the creative schemes of some of our political and societal leaders. The inventions conceived by such persons are neutral at best, harmful at worst, but innovative!

I would like to say that this pattern is a rare one. I am not sure that I can honestly say that. In the United States, we have a higher proportion of our population in prisons than any other major country except Russia and South Africa. Some leaders in gifted education (e.g., Seeley, 1984) are estimating that well beyond 5% (perhaps as many as 15%) of our juvenile delinquents could be defined as gifted.

We are a violent society, and a self-centered one. As the popular press has

noted, we are more likely to personally experience violent crime in the U.S. today than if we had lived on the Wild West Frontier, that time in our history which we have come to believe was so fiercely dangerous. When we look at what we have done to our environment—this spaceship earth—and all of the disposable objects and people in our culture, we see much ingenuity and often courageous entrepreneurship, but little caring.

Most of all, we are terrorizing our world. With great bravery, courage and creativity, we—as a nation and a world—must face the fact that we are armed to the teeth with more weapons than the entire history of humankind has known. The world's current nuclear weapons equal more than six times all of the total allied bombs dropped in World War II. And now, four decades after Hiroshima and Nagasaki, we continue a suicidal arms race and are not yet able to help countries get beyond attacking each other.

Perhaps the term gifted terrorist is too strong for many persons who have courage and creativity, but not caring. Perhaps it would be more accurate to more benignly consider them as 'Un-guided Missiles,' particularly our younger gifted individuals. These are the gifted 'hackers' who break into computer systems, or who in other creative ways courageously tweak the noses of authorities around them. Their beliefs and values that can culminate in caring are still in flux and have not yet crystallized. They still can be influenced by us, as we were by those around us, to become more caring and compassionate. Indeed, it is our responsibility to cultivate these traits.

A third kind of imbalance occurs when courage is underdeveloped. This creative person cares deeply about others and about his or her impact on the world, and longs to have a meaningful place in it. However, creative action is restricted or blocked because of timidity and anxiety, or because of a paralyzing awareness of how limited one person's impact on the world typically is.

Perhaps we can call this type the 'Appeaser' or 'Avoider,' or the 'Overwhelmed Withdrawer.' Because beliefs and values have not yet coalesced into a firm enough base, or because self-confidence is lacking, the avoider cannot

come to act even though contemplating a creative or caring action that would help the situation. Many bright persons find it particularly difficult to develop such courage exactly because of their caring and their wish to be fair to all concerned, because they are bright enough to be thorough in their consideration of the issues at hand. There is a saying that "He who can see all sides of an issue is unable to act."

It is difficult and painful to be frozen in inactivity when one cares so deeply, and even more so if the area of one's creative endeavors happens to be socially unpopular at that time. Since creativity typically involves challenging traditions, popularity may be at risk. Indeed, others often become uncomfortable when traditions are challenged (Webb, et al., 1982).

Sometimes these bright people feel particularly isolated and alone because they lack the courage to disclose themselves to others. It is like the title of the popular book, *Why Am I Afraid to Tell You Who I Am?* (Powell, 1969). They fear that their ideas and concerns might not be considered important to others. Because they can see so many alternatives, they are filled with self-doubt. And to the extent they are perfectionists, they set high standards for themselves, and expect others to do the same, and are reluctant to reveal themselves until they feel that they have met their own incredibly high standards. Their fertile minds are able to uncover every flaw in their own thinking and action, and every reason why their creative solutions would not work, or would not be sufficiently helpful, or is unimportant. They are self-critical, even perfectionistic, and run the risk of a burn-out depression. They lack a firm base of assuredness that is necessary to act courageously and to feel comfortable with oneself afterwards.

John Quincy Adams, as chronicled in Kennedy's *Profiles in Courage* (1964) suffered from such agonies even though he evidently mustered courage on numerous occasions. At age 45, after having already served as U.S. Senator, Harvard professor, and American minister to several major European powers, he wrote "Two-thirds of a long life have passed, and I have done nothing to distinguish it by usefulness to my country and to mankind..." And at age 70,

having distinguished himself as Secretary of State, as an eloquent member of Congress, and as a courageous and independent President, he stated that his "...whole life has been a succession of disappointments. I can scarcely recall a single instance of success in anything I undertook..."

How important it is for bright persons to learn how to care themselves! Truly creative persons who become eminent and make a mark have an almost burdensome sense of destiny and responsibility as a human being, and almost inevitably a measure of egotism. Their creative drive is a force that will not let them be still, and is a drive that cannot be denied, only managed. Their self-caring, if they are to be successful, includes a degree of resoluteness, and the courage to believe in the worth and validity of their creative efforts. Almost all highly effective, creative individuals suffer intense periods of frustration and depression and self-doubt; but overriding these moods must be a pervasive caring and commitment to their creative pursuit.

And finally, what if creativity is lacking? These caring, courageous souls typically implement the plans of others. They are our 'Consolidators.' Intellectually bright in their convergent thinking, they often consolidate the giant strides taken by other more creative, but less organized, companions. In one sense, they are fortunate, for they do not seem to struggle so keenly with the paradox of forsaking the organization of current knowledge for the chaos involved in creating new knowledge. To the degree that we use rigid categories on the one hand, we allow ourselves to organize our knowledge and experience in ways that give apparent meaning to our existence. But on the other hand, we limit our options for new knowledge if we do not creatively upset our current traditions. As psychologist George Kelley (1955) noted, we are constrained to experience events in the way we anticipate them. Less creative persons are thus protected to some degree from the uncertainties that accompany lack of structure, and often are appreciated because they are bright synthesizers or consolidators. These consolidators nonetheless may encounter two particular difficulties. They may find themselves undervalued as compared with

their flashier, more creative counterparts (and may underplay their own value, which is substantial), and they continually must be careful to avoid being manipulated by others who would take advantage of them.

The ideal, of course, is to possess all three—courage, creativity and caring—and in relatively large amounts. Some who have achieved this are familiar names: Ghandi, Albert Schweitzer, Dag Hammarskjold, Helen Keller, George Washington Carver, Madame Curie, Martin Luther King. It is from these persons that we can learn much. Not a single one, however, offers a simple clear-cut picture of the motivations, abilities and accomplishments that would allow a formula. Primarily, we see that each shows complexities, inconsistencies, self-doubts, and continuing struggles at self-management in the areas of courage and caring.

Ghandi! How does one capture that powerful essence in words? Born in 1869 in India, transplanted to South Africa where he first openly challenged traditional social class roles, Ghandi had for some years been creatively inspecting his own learnings, his religion, his social relationships, and the traditions of those around him. Though a devout Hindu, he was an unorthodox one. In 1925, at age 56, his sense of destiny was demonstrated by his writing of an autobiography entitled *The Story of My Experiments with Truth*. He had already creatively undertaken to challenge entire social systems, and even confronted the greatest military power on earth at that time, the British Empire, through using a force that had nothing to do with guns or bombs. The very creativity of opposing force with non-force. He led 350 million Indians in a non-violent revolution that combined courage and caring with creativity.

Martin Luther King did the same thing. Faced with traditions of servitude by Blacks, liberally laced with violent oppression if the traditions were challenged, King allowed himself to 'have a dream' of caring, unity and equality, and courageously set about to make that dream a reality. I was in the Deep South during that time, and witnessed the repeated creativity with which non-violent civil disobedience was used to oppose immoral laws of segregation and discrimination. Like Ghandi, King

recognized that there is always a price to be paid when one challenges traditions, since that sort of creativity—like many other creative ventures—causes discomfort and anxiety in those nearby because the comfortable status quo is disrupted, predictability is no longer guaranteed, and may never again be the same. King attempted to carefully and systematically implement his non-violent creativity, and made major gains until violently cut down by an assassin's bullet.

Maya Angelou found her creativity in writing, an act which took great personal courage and caring. Raised in Stamps, Arkansas, exposed to a limited and stifling education as a Black in the Deep South, sexually molested at age eight by her mother's boyfriend, she retreated into a world of silence, refusing to speak. She was afraid that by speaking, she might cause harm to happen to others since she felt personally partly responsible for being molested. She cared keenly, though not wisely, at that age. Thanks to a mentor, she was given the acceptance and love which enabled her to find the courage to express her creative and sensitive perceptions of the world around her through writing books such as *I Know Why the Caged Bird Sings* (1969).

Dag Hammarskjold (1965), a renaissance man who spoke six languages and rose to Secretary-General of the United Nations, chronicles in his book, *Markings*, his continuing inward struggle to maintain courage and caring along with his creativity. His caring often threatened to get out of hand, at the expense of his own well-being. Trying to promote world understanding and harmony, he would find himself working 20 hours per day, and yet experienced bouts of inadequacy and depression because he could see so much that still needed to be done, and felt he was doing so little to accomplish the tasks. As is true with many such people, virtually none of his friends knew how driven and struggling he felt until they read *Markings* after his death.

Paul Tillich (1952), the noted theologian who wrote *The Courage to Be*, courageously encountered the existential challenges thrown at him by philosophers who held that life was arbitrary and absurd. Tillich pointed out that caring inherently assumes that life

and the present have meaning, and that we must have belief in the meaningfulness of our values, including the courage to take a leap of faith to embrace those values. Writers such as he have helped greatly with people struggling with existential depressions, a type that I believe is almost exclusively limited to people of high intellect and creativity.

These are names that are famous to us all. However, most of us are surrounded by gifted and creative people not yet so well known or eminent, but who are struggling to obtain, balance, and interlock these three rings. Indeed, all five ingredients—courage, caring, creativity, task commitment, and intellect—must be intertwined. As parents, teachers, or other professionals, we can help these bright youngsters, even while

we ourselves may be struggling with the same issues in similar fashion. Said in other words, I think we can cultivate these, and that indeed we must cultivate them.

If we are to cultivate creativity, inspire motivation, and promote intelligence, we have the responsibility at the same time to cultivate courage and caring. Currently, we teach these latter two sparingly, if at all, at school or at home. Our society seems more interested in marketing sitcoms on TV which demonstrate incompetence, air-headed lack of consideration, intolerance, or even violence and betrayal, rather than in providing reasonable models of how men, women and children might meaningfully, caringly and courageously relate to each other.

If we are to have fully functioning gifted children and adults, we must cultivate these characteristics by modeling them ourselves, and by exposing our children to others who can serve as models. If you and I are to make a difference in the world we live in, we must use ourselves, our own experiences, and our own consciousness to teach our children, but not by simply teaching information. We must try our best to give our children the knowledge to know the questions and the freedom to ask the questions, the caring to want to pursue the answers, the flexibility to create new answers when the old ones no longer work, the stamina to pursue the answers, the humanness to care about the outcomes, and the courage to act with integrity.

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Ideas

Gifted Students at Risk: A Study of Dissonance in School

by Ellen Fiedler-Brand

Linking the phrases 'gifted students' and 'at risk seems self-contradictory. Most educators consider the gifted to be the least in danger of experiencing conflict with the educational system. And yet, recent articles by Delisle (1980), Roedell (1984), Roeper (1982), and Whitmore (1988) suggested that a certain segment of the population of gifted students undoubtedly can be considered as being at risk. As Altman (1983) reported, books, journal articles, presentations at professional meetings, and the mass media reflect an increasing concern about possible psychosocial problems of gifted children and adolescents.

Gifted students who are at risk may be having difficulties in 'fitting in' to their educational environment. One way of looking at the problem is through the lens provided by Festinger's (1957) theory of cognitive dissonance. For a certain segment of the gifted population, serious discrepancies seem to exist between their experiences in school and the kind of educational environment that they want in order to facilitate their learning and development. Gifted students experiencing such dissonance may be described as being 'significantly out-of-sync' with the system, in spite of having been identified as potentially high academic achievers (Betts, 1988). As Manaster and Powell (1983) observed, gifted adolescents are particularly in jeopardy, psychosocially, because of issues relating to how well they fit in, finding themselves either 'out of stage,' 'out of phase,' or 'out of sync' within the educational environment.

Behavior problems, ranging from underachievement to evidence of high

levels of stress, anxiety, loneliness, depression, acting out, alienation, delinquency, dropping out, and displaying suicidal tendencies are among the potential ramifications. Difficulties are further exacerbated when school personnel, parents, and the students themselves are unable to recognize and/or resolve existing conflicts. Without relevant professional intervention directed towards both students and the school system, increased dissonance and subsequent problems can occur.

Background

According to Festinger (1957), "Two elements are dissonant if, for one reason or another, they do not fit together. They may be inconsistent or contradictory, culture or group standards may dictate that they do not fit, and so on." Festinger suggests that dissonance leads to action, which may take the form of separation from the very environment which is supposed to be meeting educational needs (Lee, 1976).

If staff can identify gifted students who are at risk before it becomes obvious, effective intervention strategies can be implemented.

As Tagiuri (1968) pointed out, an organizational climate includes elements related to both its social system and its culture, as well as to other fac-

tors such as physical surroundings. Possibilities exist for dissonance to occur within each of the elements of the school setting. This is particularly true for the gifted who, by definition (Marland, 1971), differ from the majority of the students for whom regular educational programs are primarily designed.

If staff can identify gifted students who are at risk before it becomes obvious, effective intervention strategies can be implemented. As Buescher (1987) pointed out in his article on counseling gifted adolescents, "Crisis intervention, while desirable and necessary in some key moments, should never become the treatment of choice. Adolescents in particular are too efficient at hiding critical symptoms until difficult outcomes are inevitable."

Without a systematic process for gathering data, a school district can only speculate about how much dissonance students are experiencing and about the areas where dissonance occurs. As Wehlage, Rutter, and Turnbaugh (1987) noted, "Schools are not likely to help at-risk students unless they can change fundamental school-student interactions." As an outcome of appropriate research, professional staff can make more effective decisions about program improvement that allow for the greatest congruence between identified student needs and the educational opportunities provided by the district.

The Study

A study designed to investigate methodology for identifying gifted students who may be at risk in their high school environment was conducted within a large suburban high school in the greater metropolitan Chicago area. Particular emphasis was placed on examining whether gifted students differed from nongifted students in the levels of dissonance they experienced

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and in the dimensions of the educational environment where dissonance was perceived. Personal and environmental factors that might influence gifted students' perceptions of dissonance also were considered.

Besides a general exploration of ways to find students who may be at risk due to environmental dissonance, the study included two specific avenues of investigation: 1) comparing gifted students to nongifted students in relation to total dissonance and to dissonance on different dimensions of the educational environment, and 2) determining if there were differences within the gifted population between high-dissonance and low-dissonance students in relation to several environmental and personal variables.

Among the environmental variables examined were the level of participation in various program options and the extent of involvement in co-curricular and out-of-school activities. Personal variables included high school grades, educational aspirations, and parents' level of educational attainment. Differences between males and females also were considered.

Overview of the Design

A paper and pencil self-report instrument based on the Learning Environment Inventory developed by Fraser, Anderson, Walberg (1982) was used to assess the students' perceptions of their high school environment. The total level of dissonance was determined by comparing the absolute differences between individual students' perceptions of the actual learning environment and their concept of an ideal learning environment. In addition, 15 dimensions of the school climate were considered separately: cohesiveness, diversity, formality, speed, material environment, friction, goal direction, favoritism, difficulty, apathy, democracy, cliqueness, satisfaction, disorganization, and competitiveness.

Students were defined as 'gifted' or 'nongifted' based on the district's criteria for its gifted program. Identification tools included teacher recommendation, parent recommendation, and a product of creativity at the level of excellence, in addition to test score and achievement data.

An informational questionnaire was used to gather information about students' participation in various educational options and in co-curricular and out-of-school experiences. The questionnaire also assessed their educational aspirations, and their parents' level of educational attainment. Student records were used as the source of information regarding achievement level.

The study was exploratory in nature. No assumptions were made about the generalizability of the findings to students anywhere other than at the high school where the data were gathered.

Results

Forty-seven gifted and 233 nongifted students enrolled in grades 10 through 12 participated in the study. A wide range of scores was found for students at both ability levels, gifted and nongifted. Based on these results, the methodology seems to be successful in identifying differences between individual students in regard to their level

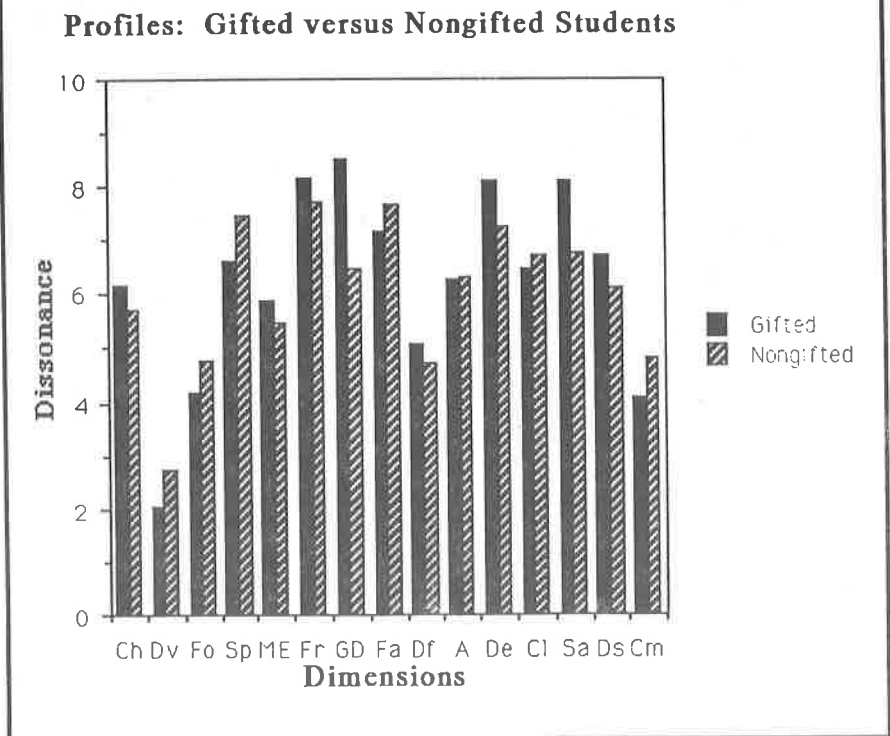
of dissonance with the educational environment. Group profiles were plotted for both gifted students and nongifted groups. These profiles, which are shown in Figure 1, reflect the results on each of the 15 dimensions of the educational environment for all of the students in both categories.

The vertical axis of the graph represents the mean level of dissonance with each dimension of the educational environment. The horizontal axis represents each of the 15 dimensions of the learning environment that were measured. The total results for both of the subgroups in the sample population were plotted together in order to compare the profiles of all the gifted students versus all of the nongifted students.

The profiles show that gifted students as a group experience more dissonance than nongifted students on eight of the 15 dimensions of the educational environment. The most noticeable dimensions were speed, goal direction, democracy, and satisfaction. In

Figure 1

Dissonance Experienced by Gifted Students as Compared to Nongifted Students on Each Dimension of the Learning Environment



relationship to the dimension of speed, the results indicated more dissonance for nongifted students as a total group than for the gifted students as a total group. Gifted students experienced more dissonance than nongifted students on the dimensions of goal direction, democracy and satisfaction.

Statistical analysis of the data revealed very few significant relationships between dissonance and ability level among the particular high school students tested. Insofar as both groups were concerned, dissonance existed; there simply were only a few measurable relationships found. Also, gender was not shown to be a factor.

Although no significant relationships were found when total dissonance was considered, when each of the 15 dimensions of the educational environment were considered, significant relationships were found on three: apathy, cliqueness and satisfaction. The perceptions of the gifted and nongifted subgroups seemed to be more accurately revealed by considering the specific environmental dimensions, rather than by just examining total dissonance.

Of the personal and environmental factors considered, only academic achievement was found to be significantly associated with differences in level of dissonance between gifted and nongifted students. Data analysis revealed differences between low dissonance gifted students as compared to those who were in the moderate range. In other words, the variance found in relationship to academic achievement was not associated with being highly dissonant.

Implications

Based on the results of this study, dissonance with the educational environment seems to be a measurable phenomenon that can be discovered through simple paper-and-pencil assessment. By reporting their perceptions of the actual learning environment compared to their preferences regarding their ideal learning environment, high school students can reveal the degree of dissonance they are experiencing in school.

Steele, House, and Kerins (1971), who studied the learning environment as a part of a large-scale evaluation of

the Illinois Gifted Education Program, noted two ways of using such results: 1) to identify students whose perceptions are deviant from the group so they can receive counseling and differential treatment, and 2) to manipulate environmental factors so that students' learning can be optimized. By being able to identify the degree to which individual students are experiencing dissonance with the educational environment, both kinds of interventions become possible.

Clearly, implementation of a process to assess dissonance with the educational environment might be considered as good preventative medicine, much like an inoculation against social-emotional problems in school.

Dissonance can become more sharply defined when specific dimensions of the learning environment are considered individually. Therefore, this procedure has greater merit than simply painting the picture with a broad brush by only looking at total scores. Since school climate is a composite of many diverse elements which have substantial impact on student learning, being able to target specific components which are greater sources of dissonance for students has clear-cut advantages for school improvement.

In considering the dimensions of the educational environment where relationships were found between dissonance and ability level, an interesting pattern emerges in connection with low dissonance. In each case, fewer gifted students than expected were low in dissonance and more nongifted students

fell into this category. These results are consistent with Silverman's (1986) conclusions that usual high school practices are aimed at the general student population and therefore are a better 'fit' for them than for the gifted.

Insofar as the results suggesting an association between dissonance and achievement were concerned, performing very well in school does not seem to mean that a student is exempt from dissonance. The results tend to support the conclusions of Fisher and Wass (1970) and Yadusky-Holahan and Holahan (1983) who indicated that high achievement is accompanied by high emotional costs.

On the basis of the results of this study, regardless of whether students are identified as gifted or not, the level of dissonance they are experiencing apparently can be determined and, as a result, appropriate educational decisions can be made. When relationships are found between various ability levels and dissonance on specific dimensions of the learning environment, interventions can be targeted to the appropriate groups. Therefore, the methods used in this study have broad implications for all high school students and the educators who serve them.

Conclusions

As Costello (1987) observed, "An effective educational organization is one that continually collects evidence about conditions contributing to student progress and uses these findings to reshape student learning experiences and enhance student progress." Therefore, the procedures developed for this study hold considerable promise as a basis for school improvement. By considering those dimensions of the learning environment where students at various ability levels are experiencing dissonance, school districts can work to reduce dissonance for specific subgroups of the school population and thereby reap maximum benefits in terms of the psychosocial adjustment of students.

Since identification of highly dissonant students was a key element of the methodology used for this study, these procedures can be used for designing program interventions that are specifically targeted to meet individual student

needs. Identifying students who are out of sync with the high school environment can be a vital link in educators' efforts to provide appropriate services for students who are potentially at risk. Clearly, implementation of a process to assess dissonance with the educational environment might be considered as good preventative medicine, much like an inoculation against social-emotional

problems in school. Further research is recommended to determine whether the findings of this study in relation to ability level were situation-specific or are more broadly generalizable.

As Moos (1973) observed, "The optimum arrangement of environments is probably the most powerful behavior modification technique which we currently have available." By gathering in-

formation about the dissonance that students experience in school, educators can identify students who may be at risk and can make appropriate modifications to the school environment that will increase the probability that all students, including the gifted, can fulfill their potential.

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Ideas

Curricular Approaches for Gifted Learners

by Joyce VanTassel-Baska

It is not unusual for people to misinterpret the basis on which gifted education has been promoted in our educational settings. Many believe it constitutes an attempt to provide an elitist education to a few whose sole cause for attention is a high test score. Others believe it to be a 'fad' what will pass out of vogue as so many other areas of education have. Therefore, in explaining the idea of appropriate curriculum for the gifted, it may be important to state the major premises underlying the need for such consideration in the first place.

The gifted student has special learning needs that require a special educational program just as other populations do who deviate significantly from what we call the norm for learning.

Why Do We Need Special Curriculum for the Gifted Learner?

The gifted student has special learning needs that require a special educational program just as other

populations do who deviate significantly from what we call the norm for learning. Characteristics such as varied interests, rapid learning rate, the ability to manipulate abstract symbol systems all point to the need for a responsive school environment. These special characteristics translate into a set of curriculum responses that go beyond and differ from what would be required for typical learners (Table I). Thus, the basis for considering a specialized curriculum for the gifted rests strongly on the characterological differences these learners bring to educational settings, and the challenge for educators is to interpret those differences in the framework of the schooling process.

The majority of gifted learners will not develop their potential commensurate with their capacity without careful nurturance—some of which must be provided by the home and greater community and some by the schools. Data on dropout rates among the gifted, lack of funding and lack of service to low-income students of promise, and serious problems with underachievement among the gifted population all point to key areas of need. Even well-achieving gifted students are not being challenged by school but rather are 'coasting' by meeting the standard set, but not going beyond to set new standards of excellence. Attention to a curricular structure that allows for the development of excellence in key areas seems essential if these students are to be optimally served.

The general education program as it is currently constituted does not respond adequately to specialized needs such as those of the gifted since emphasis is on basic skills taught from basal texts with the goal being to obtain minimum competency for all. Many gifted students have mastered such skills before school attendance, and others master them very rapidly without extensive drill and practice during the

early years of schooling. Typically, they are ready for a more advanced curriculum diet at younger ages than their age peers, advanced in respect to the progressive development of skills and concepts at a rate responsive to their competency level. The gifted learner can also profit from more intensive involvement with key areas of the curriculum and the opportunity to be exposed to areas of curriculum not typically taught in elementary and secondary settings. There is little adaptation made in the general curriculum, as it is currently implemented in many school districts, that adequately responds to these types of needs of the gifted. Therefore, specialized educational programs and curriculum is necessary in order to provide appropriate intellectual nurturance.

It can be argued that schools have much to gain from offering high-powered curriculum to the gifted. Generally, change in schools is slow and reactive in nature, and efforts are frequently diffused by instituting innovations with everyone. Consequently, seeking positive change with a targeted group of learners whose performance outcomes are readily discernible provides a safe testing ground for efforts ultimately to be used with larger segments of the school population. Good curriculum ideas then can be generalized to all learners. Furthermore, schools are many times judged by the quality of their program for top students and the extensiveness and richness of their curriculum offerings at the upper level of schooling. These learners also form the core of individuals who will represent their schools in competitive academic settings such as quiz bowls, contests, and other academic competitions.

Thus, appropriate curriculum for the gifted seeks to enable and empower exceptional learners to engage in meaningful experiences that will help

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Table I

The Relationship of Characteristics, Learning Needs and Curriculum for the Gifted (Cognitive)

Characteristic	Learning Need	Curriculum Inference
Ability to handle abstractions	Presentation of symbol systems at higher levels of abstraction	Reorganized basic skills curriculum Introduction of new symbol systems at earlier stages of development (e.g., computers, foreign language, statistics, etc.)
Power of concentration	Longer time frame that allows for focused in-depth work in a given area of interest and challenge	Diversified scheduling of curriculum work 'Chunks' of time for special project work and small group efforts
Ability to make connections and establish relationships among disparate data	Exposure to multiple perspectives and domains of inquiry	Interdisciplinary curriculum opportunities such as special concept units, humanities and the interrelated arts Use of multiple text materials and resources
Good memorization and rapid learning	Move rapidly through basic skills and concepts in traditional areas; organization of new areas of learning more economically	Restrictive learning frames to accommodate capacities of these learners (i.e., speed up and reduce reinforcement activities) Organization of new curriculum according to its underlying structure
Multiple interests; wide information base	Opportunity to choose area(s) of interest in school work and go into greater depth within a chosen area Provision of learning center areas in the school for extended time use	Development/organization of self-directed learning packets Use of individual learning contracts

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develop their initial promise both for the sake of themselves and society. And it seeks to use what is learned from successful work with the gifted population to make positive changes in schools for all learners.

What Does General Education Research Contribute to Our Understanding of Curriculum for the Gifted?

Important strands of research are on-going now in general education that appear important to our conceptual framework for understanding appropriate curriculum for the gifted. Curriculum planners for the gifted need to be mindful of the optimal match between learner capacity and level of experiences provided. Consequently, the best curriculum intervention may occur where both personal skill level and challenge level are correspondingly high as found in recent studies of both gifted and non-gifted adolescents (Csikszentmihaly, 1987).

Recognizing that sophistication in a content area precedes creative accomplishments in that area is an important issue for curriculum planners in gifted education.

Recent creativity research (Amabile, 1983) reinforces the idea of working with learners in content-specific areas. Picasso was creative in art because he knew it well as a domain, had practiced it assiduously from an early age, and was deeply interested in it as a field of inquiry. Recognizing that sophistication in a content area precedes

creative accomplishments in that area is an important issue for curriculum planners in gifted education. Such research also coincides with our understanding of some current conceptions of giftedness as being domain-specific (Gardner, 1983; Feldman, 1986).

...research on transfer suggests that "thinking at its most effective depends on specific context-bound skills and units of knowledge that have little application to other domains" (Perkins & Saloman, 1987).

Work on motivational theory also has important linkages to gifted education, and a real need exists for relating new findings in this area to curriculum and instructional planning. Research has demonstrated that children who have learning goals rather than merely performance goals use obstacles as a cue to increase efforts, change strategies, and improve performance (Dweck, 1986; Ames, 1984; Nicholls, 1984). Studies of the relationship of ability to motivation have suggested that children's actual competence does not strongly predict confidence in future attainment (Bandura & Dweck, 1985). For gifted girls, there has been found a negative correlation between actual ability and maladaptive patterns like low expectancies, challenge avoidance, and debilitation under failure (Licht & Dweck, 1984). Understanding individual differences, then, among the gifted and especially subpopulations such as girls and disadvantaged and minority populations on this motivation

dimension, is critical in planning appropriate curriculum.

Human learning theory in the 1980s is heavily rooted in the basic disciplines of reading, writing, mathematics, and science. Much research is on-going that is attempting to explain how children master complex knowledge structures and procedures (Brown & Campione, 1986). In both reading and mathematics, current research has supported a meaning-based approach that provides appropriate drill and practice in key activities (Anderson et al., 1985; Resnick, 1984). These findings might lead gifted educators to consider curriculum reorganization of subject matter that focuses on mastery of key concepts with follow-up drill and practice only as needed.

Studies on thinking also contribute to our understanding of appropriate curriculum and instruction for the gifted. Expert-novice comparisons in various fields (Berliner, 1985; Sommers, 1980) have yielded differences favoring experts in metacognitive acts like planning and revising. Yet a collection of research on expertise has revealed that the successful utilization of these skills may be content-specific. Rabinowitz and Glaser (1985) found that expert performance entailed a large knowledge base of domain specific patterns, rapid recognition of situations where these patterns apply and the use of forward reasoning based on pattern manipulation, to reach solutions. Further, support for such domain specific research comes out of studies using general context-independent cognitive strategies and finding no clear benefits outside the specific domains in which they are taught (Pressley, Snyder, & Cariglia-Bull, 1987). Thus, research on transfer suggests that "thinking at its most effective depends on specific context-bound skills and units of knowledge that have little application to other domains" (Perkins & Saloman, 1987). The implication for gifted education, then, might be to wed holistic models such as creative problem solving and creative thinking to specific domains of inquiry where they might be effectively utilized and to uncover the paradigms for thinking embedded in traditional subject matter.

Curriculum planners for gifted learners need to be sensitive to such new

research so that adaptation in method and approach to teaching the gifted can be made, based on a firm grounding in relevant research areas. And clearly the studies cited offer important data for educators of the gifted at all levels of schooling.

What Myths Prevail in Practice About Appropriate Curriculum for the Gifted?

Yet our understanding of appropriate curriculum for the gifted does not fully translate into current practice. Rather harmful myths tend to prevail. One myth is that 'differentiation' means for the gifted 'different from what is provided for all learners'; thus, curriculum should seek to define novelty as a key ingredient. A classic example several years ago was the introduction of computer literacy as a curriculum offering for the gifted. It was not in the general curriculum, and it was 'new'; therefore, it must be appropriate for gifted students. This same argument was frequently advanced for the teaching of thinking skills as well. Schools traditionally have not taught thinking skills directly so it became the purview of the gifted curriculum to do so. In this search for novelty, curriculum for the gifted became 'faddish' and associated with any new curriculum idea that emerged, whether it responded to the specific needs of the gifted learner or not.

A second myth about curriculum for the gifted is that all experiences provided for these learners must be creative and focused on process. Open-ended activities, creative thinking and problem solving and the development of products become ends in themselves rather than a part of a larger curriculum framework that values these as **emphases** in knowledge acquisition and utilization. Gifted students then become steeped in manipulating processes without adequately understanding the substantive content bases underlying their appropriate application. Thus, core domains of learning have been evaded as appropriate vehicles for curriculum delivery to gifted learners.

A third myth about appropriate curriculum for the gifted is that one curriculum package will provide what is

needed for this population. Thus, school districts may search for the right textbook or invest in developing the best set of topical units or may structure the most innovative course possible and feel that the gifted will be well served. Unfortunately, this population defies such simplicity of design. Making a curriculum appropriate for the gifted learner is an on-going developmental task, requiring multiple resources, units, and courses as multiple levels of development. Thus, the attitude of 'one size fits all' does not apply to curriculum for the gifted any more than it does to the larger expanse of learners.

A fourth myth about appropriate curriculum for gifted learners is that acceleration of their curriculum is harmful in some way, either because it pushes the child or because it leaves gaps in their knowledge. Consequently, when school districts do consider accelerating content instruction, it is usually reserved for a very few students, used in only one or two content areas, and preset in terms of the amount of acceleration which might occur. Mathematics has typically been the favorite subject at the secondary level for acceleration by one year. At the elementary level, some school districts may allow students to advance reading instruction by one half to one year. Yet of all the interventions we provide for the gifted, acceleration of content has the best research documentation of positive impacts and outcomes (Daurio, 1980; Kulik & Kulik, 1984).

Such mythology about what constitutes appropriate curriculum for the gifted is additionally problematic when we consider the settings in which many gifted students are served their curriculum. Typically, a set-aside contact time of 2-4 hours per week in which a special curriculum of one of the types described is administered. For the 26-28 hours of additional schooling per week, these students are in the regular curriculum in the domains of inquiry valued by schools, their communities, and society as a whole. In other words, when we consider appropriate curriculum for the gifted as only the way the 2-4 hours per week are spent and ignore how 87-03% of the instructional time in school is spent, we are seriously ignoring the very premises on which we have based the need for a specialized

program, as well as those curriculum areas we collectively value.

What Constitutes Appropriate Curriculum for the Gifted?

As we seriously consider improving the state of the art in curriculum for the gifted, we must employ a perspective that synthesizes successful approaches with gifted learners rather than choosing our favorites among them. This approach implies our willingness to consider as equally important three curriculum dimensions which can be described briefly as: 1) a content-based mastery dimension that allows gifted learners to move more rapidly through the curriculum; 2) a process product research dimension that encourages in-depth and independent learning; and 3) an epistemological concept dimension that allows for the exploration of issues, themes, and ideas across curriculum areas. These three dimensions of curriculum for the gifted are derived from the literature and practice of effective interventions with gifted learners (Van-Tassel-Baska, 1988).

Moreover, we need to find effective ways to implement these dimensions. We must plan how to adapt existing content curriculum to respond to the needs as an integral part of their program and find grouping strategies that best accommodate such adaptations. We must find creative ways to incorporate novelty, creativity, and interdisciplinarity into our core curriculum rather than treating these concepts as separate curriculum entities. We need to find ways of compressing, accelerating, and reorganizing the core curriculum to make it more responsive to gifted learners; we need to infuse higher level thinking skills into the curriculum, with a strong emphasis on problem finding and problem solving behaviors, and we need to ensure that the gifted have an opportunity to explore ideas, issues, and themes both within and across domains of inquiry. A synthesis of these fundamental approaches to curriculum for the gifted is required in order to respond to all of the diverse characteristics and needs of the population.

How do we go about doing this? First of all, it is important to state that this view of curriculum appropriateness

for the gifted represents an on-going commitment on the part of a school district, for it implies making changes in the total curricular structure as it impacts on individual learners. In that sense, it requires curriculum flexibility to prevail at all levels. Beyond that, however, it also implies using specific techniques for differentiating existing curriculum, modifying instruction, and selecting appropriate materials. While it is reasonable to infer that manipulation of written curriculum alone will not bring about curriculum appropriateness for the gifted, it is also fair to assume that if such manipulation occurs in tandem with a shift in instructional technique and a set procedure for reviewing

and adopting text materials, results for gifted learners would be positive. Thus, effective differentiation takes into account both the written and the delivered curriculum (Table II).

Conclusion

Appropriate curriculum for the gifted involves a thoughtful consideration of their underlying characteristics and needs as a special population so that the resultant interventions for them portray a 'goodness of fit' rather than a panoply of either arcane or superficial opportunities. Furthermore, the field of gifted education has evolved to a stage where a synthesis of approaches must be

employed in order to address the fundamental needs of the gifted learner in a comprehensive and articulated fashion. Thus, traditional content learning must be wedded to desirable process skills and paradigms, alternative projects for independent student work, and more integrated learning opportunities across curriculum areas. For the practitioner, these ideas represent a major shift toward general education in considering issues of curriculum development for the gifted and away from a separate conception of curriculum that isolates learners and limits the potential growth of the very learners we hope to serve.

Table II

Appropriate Adaptations of Curriculum, Instruction, and Materials for Gifted Learners

Curriculum	Instruction	Materials
compression by using a diagnostic-prescriptive approach for basic skill learning	faster-paced instructional pattern	advanced reading level
acceleration of content	more frequent use of inquiry techniques	organized by concepts rather than isolated skills
reorganization of content according to higher level skills and concepts	use of varied questioning strategies that include convergent, divergent, and evaluative	inclusion of higher level questions for discussion
infusion of higher order thinking skills into content	use of cooperative learning groups for problem-solving and special projects (cluster by ability/interest)	inclusion of ideas for group and independent student investigation
development of advanced products related to the content area	more frequent use of discussion	problem sets, exercises, and activities are organized from simple to complex and include examples that extend 2-4 years off level
integration of content area by key ideas, issues and themes	greater use of independent contract work and study	provision of extension activities that allow students to pursue a related topic in depth
integration of ideas across related content areas	use of a variety of instructional strategies	provision of idea connections to multiple areas of the curriculum

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Ideas

Illinois Investment in the Future: Illinois Mathematics and Science Academy

by *Stephanie Pace Marshall*

The Illinois Mathematics and Science Academy is a bold venture in education in Illinois. Having opened on September 7, 1986, with 210 of the state's brightest youngsters, the Illinois Academy is a three-year public residential school for secondary students gifted in mathematics and science. Presently, the student body numbers 500, with projected enrollment for the 1990 school year expected to be 650 students.

Students live in recently constructed dormitories on campus. The Academy is situated on a 93-acre campus in Aurora, in close proximity to Illinois' I-88 high tech corridor. Fermi National Accelerator Laboratory, Argonne National Laboratory, Amoco Research Laboratory, NALCO and AT&T Bell Laboratories are among the research facilities located along this corridor.

Mission

The mission of the Academy as stated in its philosophy statement is "to inspire and challenge young boys and girls gifted in mathematics and scientific ability in a manner which will maximize the use of these talents for the benefit of society." Within the context of this mission, two goals were established by the Board of Trustees:

To provide an educational, social and emotional climate in which students with exceptional aptitude in mathematics and science can develop their intellectual gifts and become committed to the search for humane solutions to our world problems.

To serve as a laboratory for the development, testing, and dissemination of innovative techniques in mathematics, science, and the humanities, which can become a resource for secondary school teachers in Illinois and the nation.

The Illinois Academy was the inspiration of Dr. Leon Lederman, Director of Fermi National Accelerator Laboratory, and was officially established in 1985 by the Illinois' Comprehensive Educational Reform Bill, Senate Bill 730. The Academy was created in response to a task force convened by Governor James Thompson on the quality of mathematics and science education in Illinois.

The task force concluded,

There is a widely recognized perception that the nation is facing a crisis in fulfilling its need for citizens trained in science, mathematics and technology...The State of Illinois has an obligation towards this national issue, and to its own need.

Presently, six states have established residential schools. These include North Carolina, Louisiana, Mississippi, South Carolina, Texas, and Illinois. With the exception of the Illinois Academy, all schools operate a 2-year program. The Illinois Academy is the only 3-year program in the country, and is governed by a 17-member board of trustees. The Academy admits approximately one out of every 1,000 sophomores in Illinois, which represents one percent to one-half of one percent of the state's gifted population.

Student Selection Process

The Academy's legislative charge was to select students through competitive examination, and to have them representative of the geographical, socio-economic, ethnic, and gender distribution of Illinois.

IMSA encourages students with a strong interest and aptitude in mathematics and science to apply for admission. Students who will have completed the equivalent of the ninth grade, and who are residents of the state of Illinois, are eligible for consideration.

The Academy's admission criteria are based on a search for unique indicators of future success among the enormous diversity of talents, backgrounds, and preparations characterizing student candidates. A student selection committee consisting of educational leaders and business professionals from throughout the state evaluates each student application in five areas: mathematical reasoning, scientific reasoning, communication ability, interpersonal relations, and performance ability.

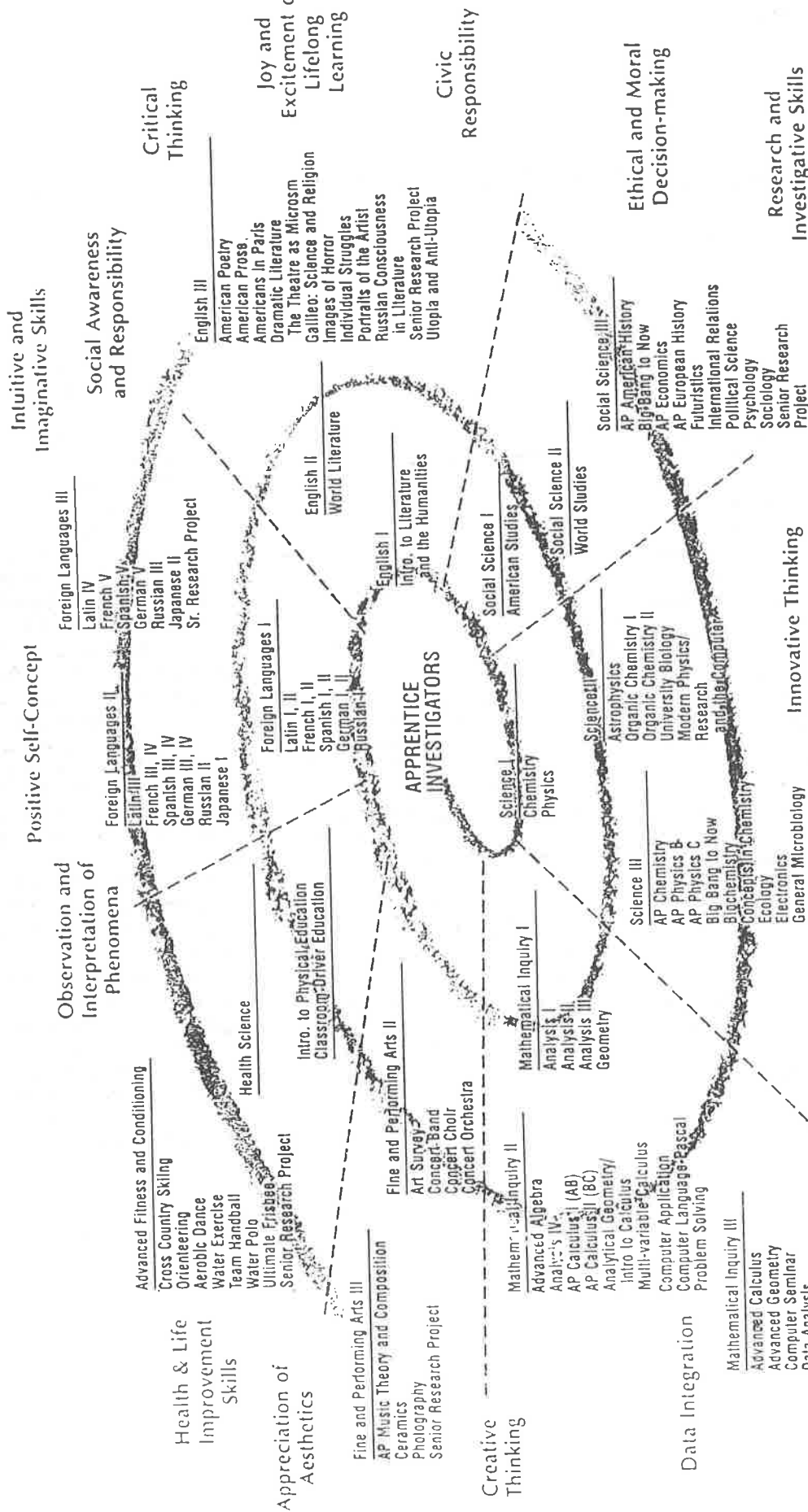
Applicants are required to submit an application, including SAT scores and transcripts. Evaluations completed by mathematics and science teachers, and a counselor or principal are also required to complete the application file.

The evaluators read each application at least three times without initial reference to standardized test scores or grades. They look for the student's initiative and level of commitment in participating in specific projects and leadership activities, as well as evidence of inquisitiveness, persistence, innovation, curiosity, and creativity. Assessment of student performance and accomplishment is then coupled with standard achievement test scores, grades, writing samples, and an option-

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CURRICULUM SPIRAL

Communication Skills



al interview to serve as the basis for student selection.

Student Demographics

The average Scholastic Aptitude Test (SAT) score in mathematics for the students in the class of 1991 is 641, and the average SAT score in the verbal area is 535. (The national average scores of college-bound seniors on these tests are 460 and 425 respectively.) Students receive their education at the Academy without charge for tuition, room and board; a small fee is assessed for textbooks, lab fees, and co-curricular activities. Of the 500 students presently attending the Academy, 58% are male, and 42% are female; 55% of the students are from Chicago and its north and south suburban areas, and 45% are from the remainder of Illinois.

The population of the present Academy student body is 69% Caucasian, 8% Black, 20% Asian, 3% Hispanic and less than 1% other ethnic or non-reporting groups.

Academic Program

The Illinois Academy was designed to provide both an accelerated and enriched course of studies for students of exceptional talent. The essence of the Academy's programs is academic rigor and experimentation, infused with risk-taking, problem solving, creative thinking, and an opportunity to analyze, synthesize and evaluate data.

The Academy's program of studies not only provides an enriched and accelerated program in science and mathematics, but also provides enrichment in the humanities, foreign language, and fine and performing arts.

Advanced level courses are taught in all of the academic disciplines with emphasis on mathematics and skills. An equally rigorous humanities program places a heavy emphasis on the inquiry and analysis of social issues.

Learner Outcomes

The primary focus of the Academy program is on the development of students as scholars and 'apprentice investigators.' Within that context, we have established critical learner outcomes in

cognitive skills and creativity, and in personal and social growth. We are seeking to develop decidedly different learners:

- Students who can formulate questions and seek answers through observation and interpretation;
- Students who can solve problems and think critically in all areas of learning by analyzing, evaluating, and integrating data;
- Students who can judge the relevance of information, who can demonstrate a core-base of knowledge, understanding, and skill in all areas of learning, and students who know how to do research.

We want to develop learners who will think creatively and innovatively, who will not be afraid to use imagination and intuition in the generation and solution of problems, who experience joy and excitement in learning, who appreciate the aesthetics, and who have healthy and positive self concepts.

IMSA's commitment, however, goes beyond personal development. We want to make sure our students leave our institution with a sense of social awareness and responsibility; an ability to make decisions within a moral and ethical context, and an awareness they have a role and a responsibility to work toward the improvement of the public good through their ability to solve the technological and social problems facing our world.

Our commitment to these learner outcomes is deep and profound because these outcomes provide the contextual scaffold and the screen through which our program is evaluated. If our commitment is to develop apprentice investigators, then everything we do must be evaluated by that standard. The Academy is now involved in extensive curriculum development, learner assessment, and professional evaluation.

Curriculum

The Academy offers a three-year program which is highly prescribed during the first year. Second and third year students are given progressively

greater freedom to select electives and design their own program.

Faculty teams coordinate activities and course content. Course planning is then developed through the inter-departmental integration of material. Students are encouraged to explore ideas and connect concepts within and across the various disciplines.

First-year students study six academic disciplines in addition to physical education. Courses are provided in mathematics, chemistry, physics, introduction to literature and the humanities, American studies, and foreign language. Foreign language options include French, German, Spanish, Latin, Russian and Japanese. Plans are being developed to offer Mandarin Chinese in 1990. The foreign language curriculum employs the concept of total immersion to facilitate learning with additional study into the cultural aspects of the people who speak the language.

Second-year students follow a more rigorous course of study with advanced courses in mathematics, university biology, scientific research methods, computer applications, modern physics, literature and the arts, world studies, and foreign language. In addition, second-year students are permitted to choose from multiple electives in each discipline (see Curriculum Spiral).

As the Academy's student body expands, it is anticipated that elective courses will be developed in areas such as laser technology, robotics, artificial intelligence, biotechnology, bioethics, thermodynamics, engineering, microbiology and mathematical modeling, as well as electives in social science, humanities, and the arts. To supplement the academic program, seminars and guest lectures by eminent scientists, as well as numerous opportunities for group and independent research with scientific mentors and affiliated laboratories, provide the stimulus of working and learning with the student's intellectual peers in an atmosphere of complete commitment and dedication to educational excellence and scientific inquiry.

Coupled with IMSA's exemplary human resources, Academy students interact with state-of-the-art laboratory and computer equipment.

Information Resource Center

In addition to IMSA's expanding multi-media collection, which includes monographs, periodicals, video tapes, software packages, and laser disks, the Instructional Resource Center (IRC) offers faculty, staff and students access to the materials from other libraries through the On-line Computer Library Center (OCLC) and the Library Computer System (LCS) systems.

Through the IRC, the Academy has extended its resources by serving as the center of a growing network of information available through on-line data bases, and facsimile transmission. The IRC offers an on-line catalog of holdings, direct access to extensive data bases available on laser disk and CD-ROM. Students at the Academy are presently tied into the University of Illinois' PLATO system, and have been granted access to the University's Cray supercomputer, as well as the supercomputer at Argonne National Laboratory.

Computer laboratories have been developed in each discipline with a comprehensive integrated information resource system that will permit students to access the Academy's library resources as well as state, national and international data bases from the dormitories. The IRC provides faculty, staff and students with access to the full range of information sources needed to help implement IMSA's innovative educational program.

A Unique Learning Environment

The Illinois Mathematics and Science Academy is a unique learning environment for gifted students. The Academy's intellectual climate is characterized by thoughtful and ethical problem-solving and a celebration of what is possible in the cultivation and development of human potential. Our academic and residential program has four primary goals:

- To develop intellectual potential, academic achievement, creativity, and responsibility in all students;

- To approach mathematics and science as the products of human creativity and curiosity;
- To foster interdisciplinary approaches to thinking and learning by integrating the study of mathematics, natural and social sciences with the arts and humanities;
- To cultivate a residential environment that is stimulating, nurturing and bias-free.

Although the academic program of the Academy is designed to be accelerated, students are encouraged to 'play, tinker' and experiment with mathematics and science, and students and staff are challenged to create. Traditional departments were not formed; instead, academic teams were instituted to foster the development of integrated approaches to curriculum development and instruction.

The heart of the Academy's academic program is its intensely enriching and stimulating instructional environment. Experimentation, innovation, and collaborative risk-taking are the behavioral norms, not the behavioral by-products of this environment.

Although the program's emphasis is clearly on mathematics and science instruction, it is balanced with the humanities. To prepare gifted students for careers in science and mathematics, it is essential that they learn to express themselves clearly and well, to understand scientific and technical data in the context of society, and to live responsible lives as contributing members of our culture.

According to Illinois' Governor James Thompson,

Illinois is a state blessed with creative and gifted students whose talents are the bright hope of our future. If these students are to grow to their full potential, their talents must be nurtured and refined, their minds must be challenged to reach out and examine the unknown. Our investment will pay dividends through the 21st century. This is the object and goal of the Illinois Mathematics

and Science Academy.

Statewide Catalyst and Resource

In addition to providing an exemplary academic program, the Academy was also charged with stimulating further excellence in mathematics and science in Illinois schools by acting as a catalyst for the improvement of the teaching of science and mathematics throughout the state. In collaboration with the Corridor Partnership for Excellence in Education, and numerous professional and business organizations, IMSA has initiated special summer residential programs that include hosting mathematics, science and technology classes, and conducting workshops for teachers and students from elementary, junior high school and high school.

As a state resource, IMSA collaborates with science and mathematics educators throughout the state. The Academy's Outreach Program fosters the goals outlined in the Academy's enabling legislation. These goals include:

- Stimulating curriculum development through collaborative efforts of the interacting institutions involved with the Academy, including universities, secondary schools, the industrial sector and national laboratories;
- Providing inservice training sites for persons in preparation for the teaching of science and mathematics;
- Hosting summer institute opportunities for Illinois teachers.
- Providing opportunities for exchanging teachers or faculty at the Academy for science and mathematics educators in the elementary and secondary schools of Illinois;
- Creating the opportunity and potential to link vocational programs and education for technology

and employment programs, to the work of the Academy;

- Offering speakers and programs for teacher institutes and inservice training;
- Provide videotapes of lectures and experiments for use in the schools of Illinois; and
- Providing assistance in identifying necessary competencies to be incorporated in public school district graduation requirements.

As a catalyst, the Academy will have a strong rippling effect far beyond our student body. It will stimulate young students all over Illinois. It will reach out to teachers and to schools throughout the state; it will have a tremendous impact on curriculum development and instructional improvement, and will provide another source of leading scientists by offering strong incentives to its graduates to stay in Illinois.

In this regard, the Academy will function as a lighthouse for academic excellence in Illinois.

Talented Faculty and Staff

To develop the potential of gifted students, a highly skilled and committed faculty is essential. All academic, full-time teachers at the Academy have a minimum of a master's degree in their respective discipline, and approximately 30% have doctorates.

The majority of IMSA's staff are from Illinois, although several have moved from other states to have the opportunity to teach and develop programs in a creative and innovative educational environment. In addition to full- and part-time academic staff, students are introduced to some of the best minds in science, industry, and government through regular seminars and special lectures.

Residential Program

Residential counselors who live within the dormitories and provide so-

cial and emotional counseling and support also are available for students. The critical thinking skills and responsibility developed in the academic program are reinforced in the residential program. Residential counselors come from diverse academic backgrounds, and must have a minimum of a bachelor's degree. Their experience enhances the academic program with extracurricular activities and athletics, which are an integral part of the Academy's live-in environment as students pursue scholarly interests within a well-rounded, nurturing setting. Residential counselors are assisted by junior or senior students chosen for their leadership, academic, peer counseling, and social skills. These students serve as liaisons between the student body and the residential staff in addressing issues of mutual concern.

Work Service

As part of their residential experience, and in order to develop a sense of responsibility to the Academy community, students are required to fulfill three hours of work service per week. Students rotate among the different Academy departments, providing services that include maintenance, clerical, security, and kitchen duties.

Community Service

Students are also required to participate in 80 hours of community service; this may be completed with the Aurora community during the school year or in the students' home town during the summer months.

Specific examples of community service opportunities include hospitals, day care centers, nursing homes, libraries, museums or any similar public service organizations. The requirement is designed to expose the student to the working world and foster a spirit of volunteerism.

Living/Learning Community

The Illinois Mathematics and Science Academy is a living/learning community. Mentorship programs, Saturday seminars, guest lecturers, and

a comprehensive academic and co-curricular program enable students gifted in mathematics and science to develop their potential.

The essence of the Illinois Mathematics and Science Academy is described in its philosophy statement.

If we do what we know and feel is right, it is bound to happen that among our graduates there will be numbered scientists, engineers, and those who go on to earn degrees in law and letters. There are likely to be those few who create new intellectual worlds, cure a dreaded human ailment or, in some other way, significantly influence life on our planet. Our philosophy will be to treat our charges as if each one is capable of this extraordinary achievement. Only one such product will make the effort an expense of the school for its entire duration worthwhile.

National Consortium Established

As noted earlier, to date only six states have established publicly funded state residential schools for students gifted in mathematics and science. However, other states are now studying this concept, and it is expected that schools will open in Indiana and Oklahoma in the fall of 1990.

In an effort to begin to exchange information and collaborate on program development, a National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology was established in April of 1988 to advance the efforts of those specialized secondary schools whose primary purpose is to attract and prepare students for leadership in mathematics, science and technology.

The establishment of the Consortium is a vital step toward the development of a formalized network for specialized schools because it will provide a forum to address the growing interests and concerns our nation has to develop our brightest minds to meet the demands of mathematics, science, and technology in the 21st century.

With our national and state agenda now on mathematical and scientific achievement, we must be responsive to the need not only to teach mathematical and scientific skills, but more important, to imbue our students with a sense of mathematical and scientific context, mathematical and scientific reasoning and thinking, and mathematical and scientific imagination and intuition.

Keeping the Promise of the Future

The Illinois Mathematics and Science Academy represents a profound commitment on the part of the

people of Illinois to develop future talent, and to enhance and improve mathematics, science, and technology education across our state.

Dr. Carl Sagan, a member of IMSA's National Advisory Board, best portrayed the Academy's purpose when he said:

The need to understand how the universe works is fundamental to human nature. It is also essential for safely managing the human future; but foolishly, we have designed a society based on science and technology in which hardly anyone understands science

and technology. This is a clear prescription for disaster.

Our future depends on producing and encouraging highly competent, ethically responsible young scientists, as well as a much greater scientific literacy in the general public.

The Illinois Mathematics and Science Academy is dedicated to meeting this challenge. There, gifted students taught by capable teachers work together in an atmosphere of academic excellence open to new ideas.

It is a gift from the people of Illinois to the human future.

Ideas

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Evaluating Gifted Programs: An Evaluation Enigma

by Marilyn J. Kulieke

Those who have attempted to systematically assess and evaluate the success of their gifted programs have most likely been challenged by the difficulty of this undertaking. From the view point of an evaluator, there are some implicit aspects of giftedness and gifted programming which make gifted program evaluation more difficult than evaluating other types of programs. These problems center around different concepts of how to define a gifted program, develop the identification procedures for gifted learners, provide common program experiences for gifted learners once they are identified, provide a substantial program experience for gifted learners, and how to find a way to determine the successfulness of a gifted program. The combination of these problems provides evaluators with a real challenge as they begin to design, assess, and evaluate the impact of a gifted program.

This article focuses on the 'prerequisites' to evaluating a gifted program. Without having certain conditions in place a great deal of time and effort can be spent with minimal information in return. Having these prerequisites in place will allow for a meaningful evaluation of the strengths, weaknesses, and needs of gifted programs.

Prerequisite 1: Defining Giftedness and Programs

In a relatively new and growing field such as gifted education, there is a continual evolution of the concept of giftedness. Researchers such as Gardner (1983), who has written about the concept of multiple intelligences, and Sternberg (1986), who has written about different types of intelligence, suggest

that giftedness is not limited to a specific aspect of talent, such as academic talent. In fact, the term 'gifted program' is really inaccurate unless it is accompanied by 'gifted in what way.'

A related concern in defining giftedness is the level of giftedness which requires special programming. Oftentimes specific kinds of experiences are provided for students with different levels of need. For example, a pullout experience may be provided for students with certain levels of giftedness and a self-contained educational experience may be provided for others. It is important to examine whether your view of giftedness is one of 'gifted or non-gifted' or of levels of giftedness within the gifted population.

Understanding your definitions of giftedness leads to an important prerequisite of a program evaluation—the ability to define the population for which programming will be provided. The population of choice may result in the provision of only one program for gifted learners or it may result in multiple programs, each with a different delivery system. A lack of understanding often leads to the evaluation of a generic gifted program which then becomes a handicap in determining program impact since different delivery systems generally produce different outcomes.

Prerequisite 2: Identifying Gifted Students

It is extremely important to identify students in such a way that they will be appropriate participants in specific gifted programs. A good match between identification and program experience becomes a second prerequisite for evaluating a gifted program.

An example of how an inappropriate match between identification and program can impact the outcomes of a program can be illustrated by a

Chapter I skills program. Students are identified for placement in the skills program by the use of a reading comprehension subtest of a standardized achievement test. Students who score in the bottom local quartile on the subtest are provided with a special program for one semester. This program is a study skills program which helps students learn about and practice the use of better study skills. In the tie between the identification procedures and the program there was an implicit assumption that students who have poor reading skills also have poor study skills. This assumption may or may not be correct for each student identified; however, it is doubtful that a standardized reading achievement test can identify those students who are most needy of help in developing their study skills. Also, it is extremely possible that students with low reading comprehension, need assistance that a study skills program will be unable to provide.

In the identification of gifted students, the same kind of identification mismatches can also occur. It is possible to identify academic giftedness by using a standardized achievement test and then develop a program which has no relation to the students' academic abilities. This entire issue of the type of program that is beneficial to an academically talented student (or any other type of gifted student) is one which is grounded in the beliefs of the organization programming for gifted students. However, an appropriate match between identification procedures and program experience will optimize the success of a gifted program.

Prerequisite 3: Common Program Experiences for Gifted Learners

One thing that is striking about gifted programs is the extent to which each program is unique. If a visit to any

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two schools in different districts is made, it is generally astounding how different the programs are. Even within schools in the same district, unless they are taught by the same teachers, there is usually a distinctiveness to the program depending on the teachers in the program, the teaching staff, and the administration. This uniqueness results in several challenges to the evaluator, including many different program experiences and a limited experience for the student with the 'program on paper.'

It is a common practice in an impact evaluation to measure how well the goals and objectives of the program are being met. An impact evaluation is dependent on the goals and objectives being the driving force in the delivery of the program. It is easier to deliver a program to students if it is contained in a textbook, such as a math or science program. All that is required of teachers is that they follow the textbook and the program will be delivered to some extent. However, in gifted programs, there are few textbooks to guide the delivery of the complete program.

A further complication in providing a common program experience for gifted learners is that some goals for gifted programs are affective in nature. These include goals that are based on attitudes, beliefs, and values. Enhancing student self-concept or becoming self-directed learners is a challenging goal for teachers to deliver. It is easier to accelerate a student's knowledge of math than it is to change self-concept. With these constraints in mind, it is easy to see how the gulf between the paper document which defines the program and what happens in classrooms for students might be great. This combination of the lack of a packaged curriculum and the affective nature of many goals for gifted programs often makes it difficult to deliver the program on paper to students in the classroom. It is an important prerequisite to attempt to provide a common experience for all students who will be evaluated.

Prerequisite 4: A Substantial Experience in a Program for Gifted Learners

A common problem in gifted program evaluation is the existence of programs, even if delivered completely

by the teacher, which are not substantial enough to merit evaluation. It is logical to assume that with an equivalent level of teacher implementation, the more that students participate in a program, the greater the impact. Therefore, one would assume a pull-out program in which students participate in the program for one hour each week will have less impact over a year than will a program in which students participate for one hour each day, or a full-time gifted program in which students are in the program all day. The match between amount of time for program delivery and program objectives becomes quite important. Is it reasonable to believe that a pull-out program which meets one hour per week over a year can make a significant change in the self-concept of a student? It is possible, but highly unlikely that an experience of this nature can create very much change. The student will be experiencing his/her normal classroom the vast majority of time which means that the home classroom experience will have the greater amount of impact on the self-concept. If a one hour a week pull-out program is evaluated, the goals and objectives for this program must be reasonable for the program experience.

Another arrangement of a gifted program, especially in high schools, is one in which the elements of the program are not delivered to all. An example of this type of program is one which offers optional experiences for students who qualify to be in the program. In this type of program, a student may experience one program opportunity and not others. For instance, students may participate in a mentoring program and not in courses offered to match the needs of gifted learners. An optional program is difficult to evaluate from a comprehensive program perspective. With this kind of an experience for gifted learners, the evaluation must center around the individual experiences provided in the program and a summation of the success of these experiences, as well as the numbers served by each program element.

Prerequisite 5: A Way to Determine the Success of a Gifted Program

An important element in being able to do an impact evaluation, or evaluate the effects of a gifted program, is to show to the best of your ability that the program is causing the desired outcomes. The use of an evaluation research design is the way one is aided in being able to logically draw the conclusion that it was indeed the program that caused the effects. This is done by systematically eliminating other possible causes for program effects. In order to determine program effects, there must be some comparison from which change can be inferred (Cook & Campbell, 1979). There are two common ways to infer change: multiple times and multiple groups of students. Each of these provides a challenge to gifted program evaluators.

At the least sophisticated level of using multiple times, students can be given a pretest before the program begins and a posttest at the end of the program. This means that the pretest provides a 'baseline' against which the posttest scores can be compared. If there are no changes in scores between the pre and posttest, and if implementation of the program occurs systematically, we have some basis to say that the program had no effect. A caution in this interpretation is that the assessment instrument used can have a major role in the ability to measure pre/post change. For instance, some measurements are less sensitive to measuring change. This is particularly true in the affective areas where some measures are designed to be stable trait measures. For instance, self-esteem or locus of control measures might be designed to remain consistent across time. There would need to be a major impact in order for these to change, even if the program did have some effect.

Another measurement related problem in determining program success is the relationship of the measure to the contents of the program. In the Chapter I program example mentioned earlier, let us say that a different form of the reading comprehension subtest was used as a posttest to determine if the program had an effect on reading com-

prehension. It is doubtful that the Chapter I Study Skills program had much of an impact on reading comprehension. Does this suggest that the Chapter I program was a failure? Probably not. But it does illustrate how a mismatch between assessment and program can inhibit the ability to find change even using a pre/post test evaluation research design.

At a more sophisticated level, using multiple times, a time series research design can be used. A time series consists of a series of assessments which are given both before the program begins and after the program ends. The idea behind the multiple pretest is that preprogram assessment results will provide the points for a line (see Figure 1). If one extrapolates that line further, it would be expected that the line would continue to have the same slope. However, if the program is introduced between testing time 4 and 5 one would expect the slope of the line to change if there were program effects. This type of design is a stronger design than a single pre and posttest assessment in that it helps insure that measurement fluctuations are not responsible for the change.

group in a gifted program evaluation (often called experimental group) is most often those students who are participating in a specific gifted program. Other groups studied are called 'control' or 'comparison' groups. The control group is another group of students who are not receiving the same program as the experimental group.

The use of multiple groups is a particular problem in the evaluation of gifted programs in that usually when students are identified as being gifted they participate in the program. This means that finding a control or comparison group which is equivalent to the experimental group is often a problem. Morris and Fitz-Gibbon (1978) in their evaluation series on designing a program evaluation, suggest some innovative ways to establish comparison groups. These include:

1. Use gifted students from another school in your district/region.
2. Use students with borderline scores for entrance into the gifted program.
3. Use students who qualified for the gifted program, but for some reason chose not to participate in the program.

petitor to the program that is being evaluated or a program with a totally different conceptual emphasis.

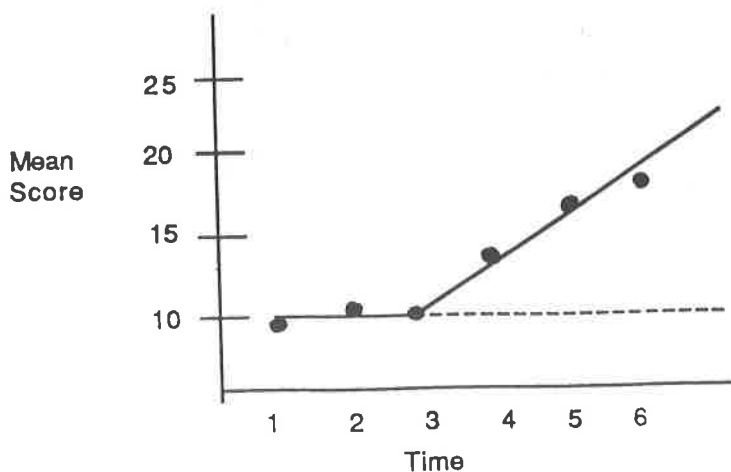
5. Use a group of students with borderline scores and randomly assign them to the program and a control group.

6. Within those selected for the program, randomly assign students to two or more groups, and then choose the order that each group will be given the program. Each group will eventually get the program, although at different times. Or one might delay the entry of one group into the program.

Using any of these ideas, or others, to examine multiple groups allows one to infer change from the program. In using any design, other than true experimental design (Kulieke, 1986) in which students are randomly assigned to a program and no program group, it is more difficult to infer that change has occurred as a result of the program. However, by using multiple groups along with multiple times (i.e., pre/post), one can say with more confidence whether change has occurred or not, given that the earlier prerequisites have been met.

The small numbers in most gifted programs add another difficulty to determining program impact. A small number of students inhibit the ability to find statistically significant changes. Regardless of this added difficulty in a small program, information such as provided by multiple groups and multiple times, along with assessments that are directly tied to the program can provide insight into the success of your efforts to program for the gifted learner.

Figure 1



Multiple groups can also be used to suggest change. A group of students is defined by the program that they receive. For instance, the treatment

4. Within the students selected for the gifted program, randomly assign students to two different programs. One might be an old program, a close com-

Summary and Conclusions

Evaluating the success of a gifted program is not without its challenges. Time and effort should be spent in the pre-evaluation stages to insure a successful evaluation effort. Questions that should be answered during this pre-evaluation stage include:

1. Are the types of gifted programs that are being provided to students defined?
2. Is there a match between the identification procedures and the program experiences provided for students?

3. Does the program provide a common experience for students across classrooms and across schools (if applicable)?

4. Is the program one which provides a substantial enough program to be worthy of evaluation?

5. Do we have a feasible way in which to infer change due to the program? If the answer to each of these

questions is 'yes,' then there is an opportunity to assess and evaluate student outcomes in a way which will aid educators in providing a quality experience for gifted learners.

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Curriculum and Program Concerns in Gifted Education

by Wilma J. Lund

To discuss curriculum concerns without including program concerns in gifted education could be described as a wagon with harness attached but no horse in the harness. The question then is, "Which is more important—the curriculum or the program?" The answer is that they are equal as both must complement each other.

There is no 'gifted curriculum.' Schools offer a core curriculum for all students which must be differentiated for the gifted learner through modification of content, process, product, or learning environment (Maker, 1983). Before a curriculum commensurate with the gifted learner's needs can be planned, a core curriculum must be in operation for all students. Unless the objectives of the core curriculum meet the needs of all learners, professionals charged with planning curriculum experiences for the gifted learner will encounter problems. According to Julian Stanley (1988), three fundamental, interrelated principles for improving the academic opportunities of intellectually gifted students are curricular flexibility, educational acceleration and appropriate articulation of course work from one level to the next. Planning curriculum is a most difficult challenge if there are weaknesses in the core curriculum.

Curriculum is a formal statement of the organized experiences consisting of goals, objectives and activities. Without this statement, much of what is practiced in the guise of appropriate curricula and programs is really fragmented learning or provisions (Tannebaum, 1983). To change the status quo of curriculum offerings in a school is a tedious process. Van Tassel-Baska et al. (1988) acknowledge that there are

three curricula in schools. There is the intended curriculum which is written, the delivered curriculum which is implemented, and the received curriculum which is learned. If this premise is accepted, designers of curriculum practices must proceed carefully. The process of designing curriculum is analogous to a road map. Just as a road map provides the traveler with possible and alternative routes to select in order to arrive at a given destination, a predetermined, designed, or developed curriculum provides the teacher and the learner with clearly expressed goals and objectives that can be individually experienced and attained (Kaplan, 1982).

...research clearly indicates that acceleration is an effective method to use, and it is also one of the most cost effective.

The issue, then, is how to organize these curriculum experiences in a way which will provide appropriate programs of sufficient scope and sequence to challenge the learner. In gifted education, not unlike other components of the educational field, the tendency is to seek the one single curriculum. No such thing exists because the range of abilities within the population of gifted is great. These students share common characteristics but yet they differ from each other in needs, abilities and interests. Accommodation of the individual gifted learner's needs,

while still responding to the general nature and needs of all gifted learners, further supports the need for modifications in curriculum. A program suitable for these students must then be delivered congruent with the curriculum. To do this, an ongoing staff development plan must be implemented, or the work planned on paper cannot be translated into a change in the status quo of the curriculum. Following the planning of curriculum modification, planners must then choose an appropriate model to deliver the program. While there are some sixty curriculum models in existence, with approximately one-fourth of them being suitable for the gifted (Greenlaw & McIntosh, 1988), Van Tassel-Baska and co-authors (1988), state that these models should not be treated as 'curriculum models for the gifted.' These models help practitioners to organize curriculum experiences, but they do not help them to make decisions on what is appropriate content for gifted learners. Rather, the models should serve as instructional tools (Van Tassel-Baska et al., 1988). This approach helps to establish the relationship to curriculum and further underscores the need to be aware of how inappropriate it is to use only one model in gifted programs. When beginning to implement a gifted education program, a school must be careful to avoid the fragmentation of offerings of 'provisions' referred to earlier and which masquerade as programs. Not to be confused with programs, these provisions are recognizable as 'color material' provided to balance the 'colorless' data obtained when an attempt is made to measure their impact. Perhaps twenty-five years ago this fragmentation could be tolerated because the data to support what constitutes an appropriate program for these students were not available. Currently, there is much research available about what constitutes an appropriate program. For example, while the education field continues to

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debate whether or not to provide opportunities for acceleration of students in the program, research clearly indicates that acceleration is an effective method to use, and it is also one of the most cost effective. Yet, there is continued reluctance on the part of schools to provide accelerated learning experiences.

Another concern is what kind of programs are needed to provide for typically underrepresented populations in gifted education programs—students who are disadvantaged, bilingual, or from different ethnic backgrounds. Within these populations, the characteristics of giftedness may be identifiable, but due to other factors, these children may have skill deficits in a content area(s). Educators then sometimes fall into a 'trap' and may think that the needs of these students can only be met within the learning environment of the 'school gifted program.' Once the 'trap' is recognized, this philosophy becomes incompatible with the purpose of schooling. Through collaborative efforts of teachers, counselors, specialists, and administrators, the trap can be eliminated.

Some schools have recently made progress in this area as decisions regarding how to provide an appropriate learning environment to develop students' abilities to the fullest potential were made. In Rock Island, Illinois, school

officials restructured the identification system to be more closely aligned with the make-up of the district population, and minority representation in the 'gifted education program' has increased. A summer program was started in Alton, Illinois, to determine why small numbers of Black students were not enrolling in advanced courses at the high school level although they were eligible to enroll in the courses. With parent, school and community involvement, minority enrollment has increased from five to twenty-six students in just two years. The Rockford, Illinois, School District initiated a pilot program which uses a modified system of identification based on needs of culturally different students who do not qualify for the 'gifted program.' By fourth grade, twenty-five percent of these students qualified for the 'gifted program.'

When curriculum and program concerns are discussed, the issue most often avoided is that of inadequate funding. While some progress has been made, it has been very slow and sporadic. "Investment in the education of these children is one of the most constructive acts which could be taken on behalf of our society" (Gallagher, 1985). Yet, only scant attention is given when 'educating the excellent' becomes a topic of discussion. Society's concern with egalitarianism is so overriding that

it will settle for the loss of a generation of productive gifted adults rather than adequately fund education for gifted children. While over a billion dollars has been provided for handicapped children in the United States Office of Education budget, no money has been allocated for the gifted (Coleman & Selby, 1983). In the current budget, slightly more than seven million dollars has been appropriated. To close the gap, financial commitment at all governmental levels is necessary.

In summary, to make a difference and to educate for excellence, curriculum and program issues discussed must be integrated into the total school experience of gifted learners. Gifted students cannot be viewed as comprising an extra ten percent of the population of a school whereby a school would have one hundred, ten percent of a student body enrolled. The education of these students, as is that of all students, is the responsibility of every staff member. Through the use of the professional skills of classroom teachers, administrators, gifted specialists and with the support of the community, differentiated curriculum experiences (modified curriculum) and programs commensurate with the needs of gifted students will become reality.

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Ideas

Reaching the Gifted with Limited Resources

by Barbara S. Devlin and Barbara A. Smith

The task of providing qualitatively different programs for gifted learners can be one of the greatest challenges faced by educators today. In the climate permeated by declining availability of funds, accountability mandates, program retrenchment, and regional enrollment declines, educators who feel a commitment toward special programming for the gifted must find an effective, low-cost approach to meeting the needs of the gifted.

The following discussion presents an approach used in a school district with limited financial resources to build an appropriate continuum of services for gifted learners. The focus is one of maximizing the use of existing organizational structures and available resources.

The Setting

School District 45 is located in Villa Park, a western suburb of Chicago, Illinois. The elementary school district serves approximately 3,100 K-8 students. With a growing deficit in its Education Fund, approximately sixteen thousand dollars (\$16,000) are specifically earmarked for gifted education. School District 45 has had special programming for the gifted since 1966.

Service to Gifted as Part of Overall Educational Program

School District 45 has adopted a philosophy of service and program design which includes a commitment to serving gifted students as an inherent

part of their educational program. This philosophy is based on the premise that gifted students deserve to be challenged throughout the school day, with educational opportunities that meet their special requirements (Clark, 1988; Cox, Daniels, & Boston, 1985; Gallagher, 1985; Passow, 1986; Renzulli, 1977; Renzulli, Reis, & Smith, 1981).

While seven percent of the students are formally identified for purposes of accessing state aid, other students not identified may participate in many of the same opportunities as identified gifted students. This position is in agreement with Renzulli (1988) that "gifted behaviors can be developed in a far broader spectrum of the school population than the small percentage of students usually identified by high scores on intelligence or achievement tests." Further, while funds specifically earmarked for gifted education are limited, a wide range of 'regular' educational resources in the school district are accessed to provide services to gifted students.

With limited financial resources, the following considerations facilitate reaching the gifted.

- Developing a written action plan for a comprehensive gifted education program.
- Utilizing three prongs of service: the regular classrooms, the learning resource centers, and the pull-out and after-school opportunities.
- Adapting already existing structures (e.g., chronological grades, staff schedules, assignments, space and equipment) and available resources including professional staff, parents, community organizations and instructional materials.

- Establishing curricular flexibility.
- Building a network of support for the district's gifted education program.

What follows is a brief overview of each of these five considerations related to the success of meeting the needs of the gifted as part of an overall educational program.

Developing the Written Plan

A committee composed of the district gifted education coordinator/instructional consultant, two representatives from the K-8 teachers, and one central office administrator developed a written five-year plan based on the following components: 'planning to plan,' philosophy, identification, curriculum, staff development, administrative design, and evaluation. The 'planning to plan' component included gathering information to provide a foundation for the subsequent components. Essential elements of this first component involved assessing the needs of the district, reviewing the literature, and suggesting a time frame for implementation.

The philosophy statement provided a foundation for the remainder of the written plan. Gifted program goals were formulated. The identification component described the specific population to be served and delineated the screening and identification procedures for student participation. The description of the curriculum design explained how to accomplish the goals of the program. A continuous staff development plan defined how an inservice training cycle would prepare staff members to participate in meaningful ways in the gifted education program. The administrative design delineated task roles

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and responsibilities as well as how the program of gifted education was to be integrated into the total educational program. Finally, the evaluation component of the written plan described formative and summative evaluation procedures, a suggested process for monitoring the curriculum, and strategies for implementing appropriate change.

The initial planning development committee for the written plan was expanded to include a teacher representative from each of the seven schools, a learning resource center representative, and two parents. The components of the written plan continue to guide the expanded committee as they refine and implement the specifics of the plan.

Utilizing Three Prongs of Service

The multiservice approach provides services to meet the diverse needs of the gifted students (Maker, 1986). In School District 45, the focal point of services to identified gifted students occurs in the regular classroom. At each grade level, grades 2-8, seven percent of the students are identified as being academically gifted based on an examination of the previous year's scores on the *Iowa Test of Basic Skills* and the *Cognitive Abilities Test*, as well as teacher recommendations. Identified students are assigned to classrooms in 'clusters' of three or four. Teachers modify the curriculum to ensure that all students, including those identified as gifted, are being taught at their appropriate ability level so that all students are motivated to learn, experience success in learning, and are appropriately challenged.

In addition to services in the regular classroom, the needs of gifted students are also met through the learning resource center (LRC) where a primary function of the LRC Director (called an Instructional Consultant in the elementary schools) is to work with the classroom teacher to diagnose individual student needs and prescribe relevant, appropriate supplemental learning activities, often using computers and other educational technologies.

The third prong of service is the pull-out and after-school enrichment

opportunities. These opportunities are offered by teachers on a stipend basis. Activities provided have included work with the microcomputer programming, research projects, creative writing, architecture, and reading and studying classical literature.

Adapting Existing Structures and Resources

The three-pronged approach to meeting the needs of the students is interfaced with the existing structures and resources. Differentiation of the core curriculum to include enrichment activities adds breadth and depth to subjects being studied. Accelerated classes allow the students to move through a subject area course at a pace related to demonstrated achievement, as does participation in the College of DuPage's 'talent search,' which places qualified students in fast-paced mathematics and verbal classes.

Additionally, the parent support group for the gifted program, called the Discovery Team, sponsors several field trips and is coordinating the Invent America program as an after-school activity to increase students' creative problem solving skills.

Finally, though not 'labeled' as programs for gifted students, other co-curricular activities available through School District 45 which appeal to gifted students include the District Spelling Bee, Geography Bee, Art Exhibit, Science Fair, interscholastic math competitions, the PTA Reflections contest, Young Authors, and the vocal and instrumental music programs.

Establishing Curricular Flexibility

The impact and survival of a gifted program will depend upon its flexibility and adaptability to new and changing conditions. Three means by which this flexibility and adaptability are provided are:

1. *the curriculum review cycle,*
2. *delivery of the curriculum, and*
3. *opportunities for accelerated movement through the curriculum.*

School District 45 has adopted a curriculum review cycle by which each curriculum area is systematically reviewed over time. Two components

of the curriculum review cycle are the identification of learner outcomes by grade level and selection of relevant curriculum materials, including materials for enrichment. Curriculum planning committees conduct the curriculum review, assisted by grade level committees. The planning committees make curriculum recommendations to the Council on Curriculum and Instruction, Administrative Council and ultimately, the Board of Education. No more than one or two subject areas are scheduled for review in any given year.

Delivery of the curriculum through differentiation provides flexibility and adaptability to new and changing conditions. According to Maker (1982), differentiation occurs in modifications of content, process, product, and learning environment. These four aspects are considered as teachers differentiate the curriculum. Content is modified through organizing the content at the student's ability level, elaborating on the regular content and exposing the student to complex information to form generalizations. Process modifications include: utilizing higher levels of thinking by encouraging the student to analyze, synthesize, or evaluate; pacing the rapidity with which content is presented; providing opportunities for independent study; and posing structured simulations for problem solving. Modification of students' products vary in form. Modifications of the learning environment include developing an atmosphere which encourages the student behaviors of originality, curiosity, and imagination. An example of differentiating the curriculum to meet the needs of gifted students includes 'compacting' instruction (Renzulli, 1977) into a shorter time frame so that students can use the extra time gained to work on related, but higher level tasks as agreed-upon in an individual 'contract' with each student.

There are opportunities for accelerated movement through the curriculum. For example, teachers in grades 2-6 flexibility group for reading and math. In grades 7 and 8, there are accelerated sections for math which can lead to completion of 9th grade algebra in 8th grade. For exceptional students, double promotion is also possible.

Building a Network of Support

A school-wide gifted program requires support. While a pull-out program can rely on the expertise of the pull-out teachers, providing services to gifted students within the regular classroom and through the learning resource center requires substantial support, as outlined below. A combination of federal, state, and local funds supports an ongoing program of staff development and technical assistance. Courses, in-service sessions, and follow-up technical assistance have been very helpful in assisting School District 45 teachers to better serve a heterogeneous group of students, including the gifted. Areas for in-service over the past several years have been identification, social and emotional concerns of the gifted, creativity, critical thinking strategies, independent learning, grouping, inquiry, individual progression, mastery learning and enriching the classroom. Staff personnel have received 'enrichment strategies' resource guides. An 'enrichment handbook' is currently being developed by the gifted education curriculum planning committee. Also, in the developmental stages, is a 'resource book of enrichment units,' organized by cur-

riculum area and grade level, and consisting of units developed or adapted by School District 45 teachers to correspond to the existing curriculum.

These supports do not grow out of a vacuum. Key individuals, groups, and activities serve to articulate program objectives and needs, and enhance active support of the program. In School District 45, as an example, the gifted education program has been included in the district's long range goals and annual objectives. The superintendent has highlighted a gifted program in speeches and written communications. Additionally, the gifted program has been the focus of articles in the internal employee newsletter, *Notes and Quotes*; the district publication *News and Views*; a communication to parents of identified gifted students, *The Pager*; and in the local newspapers. Furthermore, the gifted education program is featured once each year at a Board of Education meeting.

Support of the program has also been provided by building PTAs and outside groups such as the local Kiwanis Club, primarily in the purchase of curriculum materials. Despite limited resources, the need to serve gifted students and the methods by which those services are and will be provided are articulated in a variety of ways, increas-

ing the likelihood that the organization as a whole will respond.

Conclusion

School District 45's gifted education program is built on a philosophy of service to gifted students as an integral part of the students' overall educational program. There is shared responsibility for meeting the needs of gifted students with the entire educational staff, rather than being the domain solely of the District Gifted Education Coordinator. In addition to classroom services and learning resource center services, additional opportunities are also available on a pull-out, after-school, or weekend basis which are specifically designed for and/or appeal to gifted students. Although funding earmarked for gifted education is limited, the program uses a rich array of human and material resources from the 'regular' education program to meet gifted program needs.

School District 45's gifted program may serve as a useful model for other school districts with limited financial resources, who share in a philosophy of service to gifted students as an integral part of services to all students.

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Ideas

Educating Gifted for the 1990s

by Robert C. Morris

Programs for gifted and talented students are often one-shot experiences rather than a program or series of experiences on a continuum and designed to help students diversify their interests, develop in-depth knowledge, or refine research skills. Although there is no conclusive evidence that one specific approach works better with gifted students, there are identifiable similarities among the existing educational programs for the gifted from one school district to another. This paper represents an attempt to identify the nature and variety of those related educational programs and specific characteristics common to all programs.

Gifted Programs and Teachers

For the vast majority of gifted students, the regular classroom continues to remain the primary center for their education. This fact has remained true throughout the 1980s. Given this situation, the key component for designing educational programs remains with the classroom teacher. The skills needed for identifying appropriate curriculum objectives and designing challenging educational experiences are therefore the critical components.

The gifted student continues to be viewed by public educators as a 'part-time enrollee' in special classes, and always committed to the regular classroom. This appears to be a kind of reverse mainstreaming. As a typical approach, it contrasts sharply with the full-time enrollment in special classes or schools, or the 'school-within-a-school' arrangement often called for by gifted educators. Probably the most

common and known format for today's schools that works with gifted students is the combination of mainstreaming for 4/5s time and enrollment for 1/5 time in a special class.

Marian Leibowitz, noted authority on the education of the gifted denounces this type of 'pull-out class.' She laments the fallacy of being gifted on only a 'part-time basis,' and even on a 'full-time basis' when the student is apt to be isolated from the majority of students in a school (Brandt, 1980). Another interesting and somewhat common format used by educators when devising programs for gifted students is to assign gifted students to a regular classroom setting and establish a resource center. Within this resource setting, a teacher works in a tutorial relationship with the gifted, extending the classroom curriculum to higher and more challenging levels; as a concept, mainstreaming is a valuable approach to the education of gifted and talented students. However, as a practical approach, district level policies often preclude or inhibit multi-age grouping and clustering of students for efficiency of instruction. Mainstreaming gifted students without some reduction of the intellectual and performance ranges of students in each classroom does not provide an environment for high quality educational experiences for gifted students.

Special schools modeled along the lines of the Bronx High School of Science and the Boston Latin School are the traditional approach in many eastern urban centers. These institutions still, however, constitute the exception in our public sector rather than the rule. The establishment of the North Carolina School for Mathematics and Science in Durham, North Carolina in 1978 represents a renewal of the special school approach to high quality education for intellectually gifted students. This particular enriched program for grades 11 and 12 offers a range of subjects, not or-

dinarily found at this level, and a structure that promotes the use of more advanced placement examinations in lieu of college credit. In 1980, 42 of the North Carolina School for Mathematics and Science's 300 students placed in the National Merit Semi-Finals, the second largest clustering of such students in the country (Durham Sun, 1980). The establishment of publicly-supported schools, such as the one in Durham, which provide an education of the highest quality, is in the public interest. Unfortunately, such schools are few and not in the forefront of education.

No educational program for gifted students during the past ten years has generated more interest than has the Study of Mathematically Precocious Youth at Johns Hopkins University (Stanley, 1976; Stanley, Keating & Fox, 1974). This program, in operation since 1972, focuses on students who are extremely gifted in mathematics. Recently, the program has expanded to include other scientific areas within the curriculum. Fox and Pyrt (1979) cite acceleration, fast-paced instruction, college courses on a part-time basis, advanced placement courses and examinations, and early admission to college as educational alternatives offered in this innovative program. The major emphasis is interestingly enough the rapid completion of the secondary school curriculum and an early admission to college. This program is of particular interest because it provided a model for the development of the Duke University Talent Identification Program. Like the Johns Hopkins program, the Duke University program uses the Scholastic Aptitude Test to identify extremely gifted seventh grade students and to intervene with alternatives in their educational programs. A further expansion of this approach to the identification and education of gifted students into the Midwest and South-

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west is now underway (Stanley & Benbow, 1980).

Still another approach to the educational enrichment of gifted students which has received a great deal of attention is Renzulli's Triad Model (Renzulli, 1976), a three stage model. Feldhusen and Koloff (1979) described the application of this model with students whose achievement level are in the 60-80 percentile range on standardized achievement test batteries and whose IQs are in the 110-140 range. In this program, stage one is concerned with the development of divergent and convergent abilities. Short-span activities include creative thinking exercises and activities that emphasize fluency, flexibility, originality, and elaboration. Stage two requires more complex, creative, and problem-solving activities which demand greater student initiative. Activities include creative problem-solving, brainstorming, inquiry, synectics, and forced relationships. Stage three is essentially an independent study stage in which students work on their projects.

A wide potpourri of summer enrichment programs are also available to gifted students at all levels of the educational ladder. They range from special classes organized by local parent groups to formal programs conducted by local school districts and universities. One such formal program at the local level is reported as conducted annually in Warren County (Hern & Hern, 1979). This program, designed for students in grades 5-8, uses an institute approach on a single topic of current significance, e.g., water pollution. Instruction is provided through lectures, discussion, field trips, laboratory work, guest speakers, and audio-visual presentations. In addition to study on the institute topic, students are instructed in the skills of note taking, outlining, writing topic sentences, and transforming unified paragraphs into organized, coherent research reports. Of particular interest is the fact that students are tested in this program, and the results indicate almost 100% increase in students' cognitive knowledge of both environmental science and composition/research skills.

An example of a successful state-wide program for high school age students is the Governor's School in South

Carolina. This five-week program enrolls students in two five-week residential programs. One program is designed specifically for the academically gifted students and is conducted at the College of Charleston, Charleston, South Carolina. It provides advanced instruction in a particular subject area of the student's choice in addition to instruction on careers, values and communication skills. The other program is designed for gifted students of the fine and performing arts and is conducted in cooperation with Furman University and the Greenville County Schools, Greenville, SC. The focus in this second program is on the visual and performing arts with additional emphasis placed on careers and values and communication skills. Another program similar to the Governor's School in South Carolina is conducted by the State of Maryland at the Wye Center for Creative Writing in Queenstown, Maryland (Johnson, 1979). This is a two-week program which utilizes a camp setting. The program theme is writing and students may choose an additional field from among the visual arts, drama, dance, chorus or environmental education.

Still another example can be found in the special programs conducted by universities for academically gifted students who are rising high school seniors. These programs are regional and/or national in scope and provide the students with credit course work at the college level. Notable examples can be found in the summer programs at Duke University, Harvard University, and several other major institutions.

The broad variety of administrative arrangements reflects a lack of agreement among educators as to the effectiveness of the various programs for gifted students. The breadth of the offerings, however, does provide students with an opportunity to be selective about their education.

Common Program Characteristics

The breadth and variety of special programs and classes for the gifted and talented students frequently share common educational goals and program characteristics which set them apart from the rest of the educational programs offered by the local school

district. The most common characteristics of these 'special' programs include all of the following elements to some degree. The inclusion of these common elements helps insure the educational development of the students in a program consistent with their abilities. These elements consist of the following:

1. **Expectations.** The expectations as to quantity and quality of classroom work are established at a higher level of performance than is the standard of the regular classroom. The teacher is encouraged to establish high quality performance standards to which gifted students must hold fast. The established standards must constitute an academic challenge for each student.

2. **Independent study.** Students are provided the opportunity to combine research, thinking, and writing skills within independent study in several subjects. Similarly, the relationship between the teacher and the student gradually shifts from that of a supervisor/monitor to that of a tutor in the development of the independent study.

3. **Field study.** Students have the opportunity for out-of-school field study. These studies can range from on-site visits to a marsh where students examine plants, and/or study animals and ecological balance, to participation in tours to historical centers or museum exhibitions. The out-of-school study most often compliments and expands the classroom curriculum and provides the students with insights into a wide variety of topics not otherwise available within the school's curriculum.

4. **Competitions.** Students are encouraged to participate in state-wide essay contests, local spelling bees, TV and radio programs such as the High School and College Bowl Competitions. These competitions constitute natural outlets for gifted and talented students. Experience gained from this kind of competitive experience helps the students develop greater independence and responsibility for his work.

Other factors considered in a competitive environment include: self-imposed standards of scholarship and excellence, encouragement, understanding, and resourcefulness. These are characteristics of quality classrooms anywhere but are especially critical to

those enrolling gifted and talented students.

5. **Acceleration.** Acceleration, where a student completes a sequenced curriculum plan for a given subject field or grade level in less than the normal time allocation, has an established place in the educational programs for gifted students. Stanley's work (1974, 1980) demonstrates that gifted students are capable of handling subject matter acceleration. Similarly, students in European schools undertake advanced study at a much earlier age than do their American counterparts. Most often acceleration takes place through the introduction of advanced subject matter to students at an earlier age, i.e., Algebra I at the 7th grade level, or the completion of high school graduation requirements in a shortened time period.

6. **Enrichment.** Enrichment programs, where opportunities for additional study in a wider variety of subjects or an expanded course syllabus,

have an established place in the educational programs for gifted students. Other forms of enrichment whereby students begin study in such subjects as history, geography, cultural anthropology and sociology, as contrasted to social studies, enables a student to systematize knowledge into recognized fields of study. In the secondary school these courses take the form of honors classes or advanced placement classes and utilize the advanced placement examinations. It is obvious that the gifted and talented students need to be encouraged to take these courses, and at the same time they need to have the option of multiple entry and exit points in the sequenced curriculum of the secondary school in order to accommodate their broad range of interests.

Summary

Educational programs for gifted and talented students, like other educational programs within every school district, will be subject to a wide variety of pressures but especially those related to their financial cost. Programs that are conducted in cooperation with other educational agencies and that involve parents in the education of their children will enjoy the greatest chance of success and longevity. Districts with limited financial resources are well advised to seek consortia arrangements for special programs, strengthen and improve the regular classroom program and introduce a resource teacher or coordinator who will help devise an IEP for each gifted and talented student. This person will then assist the student and his parents in attaining the objectives of that plan through a broad base of formal educational experiences both within and outside the formal school setting.

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Ideas

A Selected Bibliography of Gifted Education Readings

Compiled and Annotated by Barbara J. Clark and June L. Grivetti

Alvino, J. (Ed.). (1985). Parent's guide to raising a gifted child: Recognizing and developing your child's potential. New York: Little, Brown and Co.

This is a practical and comprehensive guide for parents who are raising gifted children. A variety of activities and suggestions for nurturing giftedness are included.

Barbe, W.B. & Renzulli, J.S. (Eds.) (1981). Psychology and education of the gifted. New York: Irvington Publishers, Inc.

This comprehensive text includes articles by such well-known authorities as Conant, Getzels, Gowan, Guilford, Passow, Terman, and Torrance. Topics covered include characteristics, identification and motivation. Particularly interesting are the editors' suggested research ideas.

Clark, B. (1988). Growing up gifted (3rd ed.). Columbus, OH: Charles E. Merrill.

A must for educators and parents alike, this book provides a comprehensive overview of gifted education with particular emphasis on a model which integrates the cognitive, social-emotional and intuitive growth of the gifted/talented learner. The final chapter on brain research, biofeedback and parapsychology is particularly interesting.

Clendening, C.P. & Davies, R.A. (1983). Challenging the gifted: Curriculum enrichment and acceleration models. New York: R.R. Bowker.

This complete handbook discusses a wide variety of program alternatives for the gifted and talented. In addition, nearly 7400 items of print and non-print support materials are highlighted. Definitely directed towards the interests of the practitioner.

Cox, J., Daniel, N., & Boston, B. (1985). Educating the able learners: Programs and promising practices. Austin, TX: University of Texas Press.

This book reports the findings of a national four-year study supported by the Sid W. Richardson Foundation. Effective programs are described with recommendations for school districts. The use of community resources is emphasized. Legislators, school board members, educators, and parents would find the results of this study informative.

Delisle, J.R. (1987). Gifted kids speak out. Minneapolis, MN: Free Spirit Publishing.

Sometimes funny, always touching, this book showcases hundreds of elementary children from 37 states and U.S. territories, Canada, Germany and Australia who talk about being smarter, expectations, boredom, teachers, parents and more. 'Speak for yourself' sections are useful prompts in classroom discussions. Although written for children, this book provides valuable insights to adults.

Delisle, J.R. & Galbraith, J. (1987). The gifted kids' survival guide II. Minneapolis, MN: Free Spirit Press.

This sequel to The Gifted Kids' Survival Guides responds to questions raised by readers of the original. More information is provided about intelligence and testing, adjusting to school, handling expectations, and friendships. Included is a particularly touching chapter on depression and suicide among our gifted and talented youth.

Feldhusen, J. (Ed.). (1985). Toward excellence in gifted education. Denver, CO: Love Publishing.

Through their personal experiences and viewpoints, six chapter authors tackle the nature of giftedness and the education of those identified as gifted and talented. A shared concern of all six authors is the development of differentiated curricula, in which gifted learners are able to master basic skills and concepts at a pace and level appropriate to the individual. Other concerns which are discussed include the need for inter-related studies, second and third languages and self-understanding. This is an excellent resource for those involved in curriculum development.

Fetterman, D.M. (1988). Excellence and equality: A quantitatively different perspective on gifted and talented education. Albany, NY: State University of New York Press.

Fetterman addresses the dilemma of fostering excellence while maintaining equality in education. Through an anthropological case-study approach, he analyzes hundreds of programs for the gifted and talented from local, state, national and international perspectives.

Barbara J. Clark is a counselor at Kaneland Junior/Senior High School in Maple Park, Illinois, where she facilitates support groups for the gifted. She is also a doctoral student at Northern Illinois University.

June L. Grivetti is an elementary school teacher in Illinois. She is currently a doctoral student in the Department of Curriculum and Instruction at Northern Illinois University. June received a gifted education fellowship for 1988 from the Illinois State Board of Education.

This book would interest policy makers at all levels, as well as educators and parents of gifted children.

Fox, L.H., Brody, L. & Tobin, D. (Ed.). (1983). Learning disabled/gifted children: Identification and programming. Baltimore: University Park Press.

This publication is the result of three years research sponsored by the Johns Hopkins University. Fifteen chapters written by various authors, address the needs of a specific population often overlooked by traditional identification methods. Incorporating theory, research and model programs, this book proves particularly useful to psychologists, administrators and others involved in the identification process.

Galbraith, J. (1984). The gifted kids' survival guide (for ages 10 and under). Minneapolis, MN: Free Spirit Press.

Written by hundreds of gifted children for gifted children, this entertaining, informative book addresses some very important issues facing gifted and talented children including boredom, the nature of giftedness, intelligence, and expectations. It encourages children to take pride in their abilities and offers sound coping strategies for the problem areas of life.

Galbraith, J. (1983). The gifted kids' survival guide (for ages 11-18). Minneapolis, MN: Free Spirit Publishing.

This practical guide is written for gifted and talented teen-agers by nearly three hundred of their peers, who provide an honest look at friends, parents and themselves. This engaging book is especially useful for those facilitating GT support groups.

Gallagher, J.J., Kaplan, S.N., & Sato, I.S. (1983). Promoting the education of the gifted/talented: Strategies for advocacy. Ventura, CA: Office of the Superintendent of Ventura County Schools.

This important guidebook defines the importance of advocating for the education of the gifted and talented. In

addition, it suggests techniques and strategies for developing support through and by legislatures, agencies and interested groups.

Greenlaw, M.J. & McIntosh, M.E. (1988). Educating the gifted: A sourcebook. Chicago: American Library Association.

This reference book contains brief overviews of major topics in gifted education: historical background, definitions, identification, counseling, programming, academic curriculum, teacher education and parenting. Some data on state legislation are included along with curriculum materials which are available. Especially valuable is the selected annotated and cross-referenced bibliographies at the end of each chapter. Professionals and parents would find this book useful.

Heller, K.A. & Felshusen, J.F. (Eds.). (1986). Identifying and nurturing the gifted: An international perspective. Lewiston, NY: Hans Huber Publishers.

This book summarizes a major symposium presented at the Sixth World Conference on Gifted and Talented Children in Hamburg in August, 1985. It contains enlightening world views on issues surrounding the identification and fostering of gifted children. This text would interest psychologists, counselors, educators and other professionals.

Hillman, C. (1985). A futures program for the gifted elementary student: A model. Unpublished dissertation. DeKalb, IL: Northern Illinois University

Hillman asserts that gifted learners should be life-long learners. Her Five Strand Seminar Model offers unlimited content options to the gifted learner and encourages alternative roles for teachers and learners.

Kames, M.B. (Ed.). (1983). The underserved: Our young gifted children. The Council for Exceptional Children: ERIC Clearinghouse on Handicapped and Gifted Children.

This comprehensive book addresses the needs and offers solutions to the

problems of our overlooked and underserved young gifted children (3-8 years old). Chapters include: Differentiating the Curriculum, Affective Development, Creativity and Play, and The Role of the Family. This book is an excellent source of information for students, parents and teachers.

Kerr, B.A. (1985). Smart girls, gifted women. Columbus, OH: Ohio Psychology Publishing Co.

Based partially on the author's personal experience and subsequent research, this book presents an absorbing but disturbing look at the difference between girls' potential and what they believe about themselves. More than just a reflection on the past, Dr. Kerr offers suggestions for raising and educating gifted girls today. The book is of particular interest to educators, psychologists, counselors and our female gifted population.

Maker, C.J. (Ed.). (1986). Critical issues in gifted education: Defensible programs for the gifted. Rockville, MD: Aspen Publications, Inc.

This first volume in a series entitled Critical Issues in Education of the Gifted, examines the question: How can institutions develop programs that can be defended as appropriate for gifted students and different enough from the program for all children to justify the expenditure of additional funds or reallocation of existing resources (p. xvii-xviii)? Authors from a variety of disciplines present viewpoints based on research and practice. The major sections of this volume include: defining giftedness, developing curricula, enrichment versus acceleration, program development and evaluation. Legislators, administrators, teacher trainers, teachers of gifted children and all interested persons would find this book insightful.

Reis, S.M. & Renzulli, J.S. (1985). The secondary triad model: A practical plan for implementing gifted programs at the junior and senior high school levels. Mansfield Center, CN: Creative Learning Press.

A 'must' for those involved in secondary gifted programs, this book

covers a variety of topics including theory and research supporting the Secondary Triad Model, program alternatives, mentorships and advanced placement classes. Practical 'how to' advice is offered along with implementation strategies and sample documents.

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

A must for educators of the gifted and talented, Renzulli's model presents an alternative curriculum which utilizes three primary components: general exploratory activities, group training activities and individual and small group investigations of real problems. In addition to explaining the model, he outlines ways in which it can be implemented in the classroom.

Schmitz, C.C. & Galbraith, J. (1985). Managing the social and emotional needs of the gifted—A teacher's survival guide. Minneapolis, MN: Free Spirit Publishing.

This is an invaluable resource for classroom teachers and counselors who wish to address the affective needs of gifted learners. Over thirty practical strategies direct attention to self-awareness, stress management and the Eight Great Grips of Gifted Kids and other concerns—strategies which can be used in individual and group settings.

Treffinger, D.J. (1986). Blending gifted education with the total school program. East Aurora, NY: DOK Publishers.

This book presents the Individualized Programming Planning Model

(IPPM), which enables the educator to develop more effective instructional planning. The author encourages educators to respond to the unique needs of each student. This 'how to' book is for administrators and teachers who want to nurture giftedness in all children.

Tuttle, F.B., Jr., Becker, L.A., & Sousa, J.A. (1988). Characteristics and identification of gifted and talented students (3rd ed.). Washington, DC: National Education Association Publication.

This easy to read resource is intended for those beginning a gifted program, as well as veterans interested in updating and refining identification procedures. It is also an excellent introduction for teachers working with students in the regular classroom. In addition to recurring themes related to standardized testing and multiple-criteria identification, the authors address current issues such as hemisphericity, the underachieving gifted, preschool education and gender differences.

Tuttle, F.B., Jr., Becker, L.A., & Sousa, J.A. (1988). Program design and development for gifted and talented students (3rd ed.). Washington, DC: National Education Association Publication.

A companion volume to Characteristics and identification of gifted and talented students, this is a practical handbook for use in developing gifted programs. Curricular models, supplementary materials and descriptions of current programs from around the country are provided. A checklist for evaluators of gifted proposals is included. Program developers and teachers of gifted students in special

classes or in the regular classroom would find this book very useful.

Vantassel-Baska, J. & others. (1988). Comprehensive curriculum for gifted learners. Boston: Allyn and Bacon, Inc.

This book provides practitioners in gifted education with the knowledge and organization needed to develop a total curriculum for gifted students. Topics which are addressed include curriculum design, scope and sequence, adapting curriculum in the traditional content areas, thinking skills, affective curriculum, the arts, leadership, computers, and instructional strategies. This book is particularly helpful to gifted coordinators and teachers of the gifted.

Webb, J.T., Meckstroth, E.A. & Tolan, S. (1982). Guiding the gifted child. Columbus, OH: Ohio Psychology Publishing Company.

This valuable resource for parents and educators offers practical advice about motivation, discipline, stress management, depression, sharing feelings, peer relationships and sibling rivalry. Through it, the authors hope to encourage the establishment of advocacy and support groups.

Whitmore, J.R. (1980). Giftedness, conflict, and underachievement. Boston, MA: Allyn and Bacon, Inc.

An important contribution written about a specific gifted population, this volume synthesizes the author's research, personal observations and conclusions. The Appendix, containing numerous sample forms covering the scope of program implementation and evaluation is especially valuable to educators.

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