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Synthesis of Research on Gifted Youth

The research on identifying and educating gifted youth supports the use of multiple identification measures, accelerated instruction, and ability grouping.

What is giftedness? What is talent? What should schools and parents do for gifted and talented youth? What are desirable short-term and long-range goals for their development? While definitive answers to these questions are not yet available to guide us, research and evaluation projects during the past 20 years have given us some insights about how to structure and conduct educational services for gifted and talented students.[1]

Conceptions of Giftedness

Educators often view giftedness as something calling for a label (Guskin et al. 1986). The most troubling report on conceptions of gifted and talented youth was presented by Richert, Alvino, and McDonnel in 1982. They conducted a national survey of school personnel and concluded that there is "a labyrinth of confusion" (p. 89) about what giftedness is.

Sternberg and Davidson (1986) made a major contribution to theory in their excellent compilation, *Conceptions of Giftedness*, which presents the views of 29 researchers. This work offers the clearest delineation of what is known and what remains unknown about giftedness and presents the conclusion that giftedness is often seen as cognitive processing capacity, following models of information processing.

Gagne (1985) presented one of the first major attempts to delineate talent as distinct from giftedness. He suggested that talent is an ability focus that emerges out of general ability. He proposed four domains of general ability or giftedness: intellectual, creative, socio-emotional, and sensorimotor. In individuals, these abilities develop differentially; they interact with environmental circumstances and personality factors in the child and emerge as talent in specific fields, such as leadership, art, natural science, dance, or photography. Schooling is essential in the development of specific talents from general giftedness.

It is more productive to focus on gifted behaviors than to attempt to determine whether or not children are gifted.

Major determiners of school-based conceptions of giftedness are Renzulli (1986) and Stanley and Benbow (1986). Renzulli's three-ring concept of giftedness was first presented in 1978 and has been elaborated and updated in a chapter in *Conceptions of Giftedness* (Sternberg and Davidson 1986). This model proposes three interlocking sets of traits: above-average abilities, creative capacities, and task commitment. Renzulli stressed that it is more productive to focus on gifted behaviors than to attempt to determine whether or not children are gifted. He also emphasized the idea that giftedness is a set of traits that can grow with nurturance, not just a condition bestowed on some and denied to others. Major support for the three-ring model has been presented by Monks and colleagues (1985) from research conducted in Europe. Monks extended the three-ring concept to include the social context in which giftedness manifests itself (family, school, and peers).

Identification

Educators must, of course, identify gifted students before they can provide special enrichment and accelerated services. Many states make identification a prerequisite for receiving special funding for the gifted. Moreover, good identification procedures yield information about students that can guide program development.

Nevertheless, identification of signs of giftedness, of potential for high-quality creative achievement, remains a relatively inexact science. There is great variation in the procedures used to detect giftedness. Many practitioners search for the gifted *child*, not for *signs* of giftedness, of potential. They typically pay little attention to diagnosing children's particular strengths or talents. Most researchers and theorists agree that multiple measures should be used in identifying the gifted, but multiple data sources are rarely used to specify alternate types of giftedness or to specify appropriate program services. Often multiple scores are simply added up to identify the "all purpose" gifted child.

Interpreting the results of their national survey, Richert, Alvino, and McDonnel (1982) concluded that the "state of the art of identification of gifted and talented youth is in some disarray" (p. 39). They found that a wide variety of test instruments, many of them lacking any standardization, are used to identify gifted students, and are often used quite inappropriately.

Yarborough and Johnson (1983) surveyed the 50 state departments of education concerning identification of the gifted. They found that standardized achievement tests and tests of intelligence are widely used, in spite of prevailing pessimism that either form of testing really reflects giftedness.

More recently, Klausmeier, Mishra, and Maker (1987) surveyed school psychologists in the United States concerning their views and practices in identifying the gifted. Their first choices of tests were the Wechsler Scales and the Stanford-Binet. Very few used creativity tests or achievement tests. The school psychologists surveyed also viewed themselves as poorly trained for identification of the gifted.

The work of Stanley and colleagues on the identification and nurturance of mathematically and verbally talented youth has been presented in dozens of articles and a number of books. For example, in *Mathematical Talent, Discovery, Description, and Development* (1974), Stanley, Keating, and Fox presented a series of papers by themselves and others. In *The Gifted and Creative, A Fifty-Year Perspective*, Stanley, George, and Solano (1977) presented new research; and Stanley set forth the rationale for his Study of Mathematically Precocious Youth (SMPY) and its use of the Scholastic Aptitude Test (SAT) as a primary identification tool. Later research presented by Benbow and Stanley in *Academic Precocity, Aspects of Its Development* (1983) confirmed the value of the SAT as an identification tool and the efficacy of high-level, fast-paced instruction for the gifted. Van Tassel-Baska (1984) has presented a more specific rationale for use of the SAT and talent searches to identify gifted children.

Feldhusen, Baska, and Womble (1981) discussed problems in the way test scores are combined in identification systems, and Feldhusen, Asher, and Hoover (1984) reviewed the many technical problems that can arise in the identification process. Hoover and Feldhusen (1987) presented a comprehensive model for the identification of the gifted at the secondary level.

Research presented by Benbow and Stanley confirmed the value of the SAT as an identification tool and the efficacy of high-level, fast-paced instruction for the gifted.

Despite this catalog of research, serious problems remain in identifying giftedness, especially in finding talent among children from poverty and minority backgrounds (Baldwin 1987, McKenzie 1986, Chambers et al. 1980), among very young children (Hollinger and Kosek 1985), and among those who are underachievers in school (Butler-Por 1987). Some promise has been shown in the SOI (Structure Of Intellect) tests and research by Meeker and colleagues (1985), which focus on the assessment of several factors of intelligence; but Clarizio and Mehrens (1985) have criticized the SOI tests as lacking adequate norms and having questionable reliability and validity. Heller and Haeny (1985) at the University of Munich are conducting a major research project on identification of the gifted, funded by the Federal Republic of Germany.

Acceleration

Acceleration means different things to its proponents and its opponents. To proponents it means providing instruction at a level and pace appropriate to the child's level of achievement or readiness. In a series of experiments,[2] my colleagues and I showed that if an effort is made to assess children's readiness level for learning a new task, and if a new task is then taught at that proper level, children will retain the new learning in both short- and long-term memory; and they will transfer the new learning to other related learning tasks. A host of other studies reviewed by Daurio (1979) confirmed the short- and long-term values of all forms of acceleration, ranging from early admission to school to early admission to college, and the absence of problems resulting from acceleration in the lives of accelerated youth.

From the point of view of proponents, *acceleration* is a misnomer; the process is really one of bringing gifted and talented youth up to a suitable level of instruction commensurate with their achievement levels and readiness so that they are properly challenged to learn the new material. Proponents of acceleration also argue that gifted children spend much time in school encountering new material at far too slow a pace or being instructed in things they already know. They argue that an excess of such experience demotivates the gifted and talented, and is at the heart of the widespread problem of underachievement among the gifted (Whitmore 1980).

Opponents of acceleration view it as rushing children through the curriculum without concern for their social and emotional development. Although Kulik and Kulik (1984) showed in their analysis of the research that acceleration does not cause social-emotional problems, critics—especially school personnel—fear that gifted and talented youth will suffer from social immaturity in an accelerated setting and hence experience emotional difficulty. However, a recent review of the social-emotional adjustment and maturity of gifted and talented youth by Janos and Robinson (1985b) concluded that:

- Gifted and talented youth are often precocious or advanced in their social adjustment; as a result, they often prefer older playmates.
- They are socially and emotionally well adjusted.
- Extremely gifted children have more social and emotional adjustment problems than those who are moderately gifted.

Major changes in educators' views of acceleration of the gifted and talented came from the work of Stanley at Johns Hopkins University in the Study of Mathematically Precocious Youth and the later Study of Verbally Precocious Youth.[3] This research clearly established the value of accelerated instruction for gifted youth, the validity of using the Scholastic Aptitude Test as an identification tool for gifted youth at the middle school level, and the effectiveness of a diagnostic/prescriptive teaching methodology to test gifted youth in the classroom and place them at appropriate levels of readiness. Brody and Benbow (1987) reviewed the research from the acceleration projects at Johns Hopkins University and concluded:

A host of studies have confirmed the short- and long-term values of all forms of acceleration and the absence of problems resulting from acceleration in the lives of accelerated youth.

> This study investigated the relationships between acceleration and academic achievement, extra-curricular activities, goals and aspirations, and social and emotional adjustment for highly able students who have selected accelerative options to varying degrees. This study did not reveal any harmful effects as a result of acceleration (p. 109).

On the contrary, they reported that accelerated students earned more state and national awards than non-accelerated students and more attended highly selective colleges. Brody and Benbow (1987) stress that accelerated students gain in being able to select challenging learning experiences in their special interests.

Several researchers have reviewed studies of early admission to school and grade advancement of precocious children.[4] They agree on the positive value of such acceleration for children of high achievement and ability and the relative absence of personal or social problems, if the advancement is made after careful examination of the individual circumstances. These researchers presented guidelines to help school personnel make decisions regarding candidates for early admission os grade advancement.

Several researchers have reported on studies in which middle school and high school students received advanced high school or college level courses while still enrolled as secondary students (Benbow and Stanley 1983), and additional research is reported on the effects of College Board Advanced Placement (AP) Courses on high school students (Willingham and Morris 1986). Compared to students of equal ability who did not take AP courses, students who did so in high school had better academic records in college, graduated from college with more honors, engaged in more leadership activities, and took more advanced courses in college. Benbow and Stanley (1983) reported on an eight-year follow-up of students who took accelerated classes in high school. They concluded:

> Findings from the eight-year follow-up of the participants in SMPY's first fast-paced precalculus classes and equally able non-participants revealed that the most successful students in the mathematics classes achieved much more in high school and college than the equally able students who had not participated. The students were satisfied with their acceleration, which they felt did not detract from their social and emotional development. Furthermore, there appeared to be no evidence to justify the fear that accelerated rate of learning produces either gaps in knowledge or poor retention (p. 208).

Several researchers have also conducted studies of the progress and success of students who enter college early.[5] Compared to unaccelerated peers matched for ability, accelerated students earned higher GPAs, earned more honors, associated with older and more intellectual students, were more satisfied with the academic climate, and were equal in psychosocial adjustment to unaccelerated peers. Clearly, students who are ready for the college experience thrive on the opportunity to enter college early.

Kulik and Kulik (1983, 1984) have done major syntheses of the research on acceleration of the gifted. They concluded that accelerated students perform as well academically as equally able students who are already in the advanced grade(s), and accelerated students show a year's advancement over nonaccelerants of the same age. Long-range performance indicators produced less clear findings but suggested hat acce'erants earned more advanced degrees, earned top salaries, and were viewed favorably by superiors. The Kuliks (1984) concluded that:

> Together experimental and correlational studies provide strong evidence that acceleration leads to greater student achievement in school and in life for talented students (p. 89).

Given the evidence of superior achievement in school and in performance beyond school and an absence of evidence suggesting social-emotional problems due to acceleration, my colleagues and I conclude that, to provide for the gifted, we must upgrade the level and pace of instruction to fit their abilities, achievement levels, and interests. Further, for gifted youngsters, the only suitable enrichment—defined as extended learning beyond the regular curriculum—is instruction on special enriching topics at a high level and a fast pace.

Grouping

Providing special services for the gifted and talented almost inevitably requires some special grouping. Grouping the gifted for all or part of the school day accommodates achievement and readiness levels and can serve other purposes as well. Gifted and talented children complain a great deal about the boredom of their classroom experiences (Feldhusen and Kroll 1985); they are forced to spend a lot of time being taught things they already know, doing repetitive drill sheets and activities, and receiving instruction on new material at too slow a pace. These experiences probably cause gifted youth to lose motivation to learn, to get by with minimum effort, or to reject school as a worthwhile experience.

Compared to students of equal ability who did not take AP courses, students who did so in high school had better academic records in college and engaged in more leadership activities.

Grouping gifted and talented youth for all or part of the school day or week also serves as a stimulus or motivator. Interaction with other students who are enthusiastic about astronomy, robotics, Shakespeare, or algebra motivates gifted and talented students. DeLisle reports (1984) that gifted children must often hide or suppress their special interests or their enthusiasms for academic topics or else face ridicule; peer pressure prohibits excitement about academics in many schools. In special classes for the gifted and talented, the reverse is true: mutual reinforcement of enthusiasm for academic interests and activities prevails.

For gifted and talented youth, grouping also confirms the legitimacy of their personal identity. Some of them worry about being viewed as outcasts because of their scholarly or bookish natures. Through interaction with other gifted or talented youth in special programs, however, they discover others who are like themselves and learn that it is legitimate to have strong intellectual interests and enthusiasm for reading and study. Thus, the sense of being abnormal is alleviated, and a new, positive self-image can emerge.

The Kuliks reported two meta-analytic evaluations of the research literature on ability grouping (1982, 1987). They found (1982) the average effect size for educational achievement to be small but significant, favoring grouped classes. However, when high-ability youth were grouped in special classes *and* given enriched or accelerated instruction, effect sizes were large. Grouped high-ability students also developed more favorable attitudes toward the subject matter than did high-ability students in ungrouped classes. And achievement of low- and average-ability students did not decline when high-ability students were removed to the special classes.

In a more recent meta-analytic study of the research on grouping, the Kuliks (1987) included a wider variety of studies. They concluded that the strongest and clearest effects of grouping came from programs designed especially for talented students. The talented students in these programs gained more academically than they would have in heterogeneous classes (p. 28). Special within-class grouping designed for talented students raised academic achievement substantially. The Kuliks (1987) concluded that "grouping can be a powerful tool in the education of gifted and talented students" (p. 29).

A frequent complaint from regular classroom teachers is that any special grouping of the gifted that removes them from the regular classroom will deprive children of low and average ability of role models to motivate them to higher achievement. Conversely, some teachers have reported positive effects when the gifted leave; they no longer dominate the classroom, and children of low and average ability get a chance to be leaders or top performers. Nevertheless, the idea that the gifted are needed to inspire other students is ubiquitous.

In a comprehensive review of the literature on peer role models in the classroom, Shunk (1987) concluded

that the more alike observers and models are, the greater the probability that the model affects observer behavior. In other words, watching someone of *similar ability* succeed at a task raises the observers' feelings of efficacy and motivates them to try the task; hence the superiority of "coping" role models over "mastery" role models. Coping models gradually improve their performance after some effort, and are thus effective models for peers who will also have to struggle to achieve academically. Mastery models (often the gifted), on the other hand, demonstrate perfect performance from the outset.

Overall, my colleagues and I conclude that grouping of gifted and talented students in special classes with a differentiated curriculum, or as a cluster group in a regular heterogeneous classroom (but again with differentiated curriculum and instruction), leads to higher academic achievement and better academic attitudes for the gifted and leads to no decline in achievement or attitudes for the children who remain in the regular heterogeneous classroom.

Meeting the Needs of the Gifted

Gifted and talented youth need accelerated, challenging instruction in core subject areas that parallel their special talents or aptitudes. They need opportunities to work with other gifted and talented youth. And they need highly competent teachers who both understand the nature and needs of gifted youth and are deeply knowledgeable in the content they teach.

If we fail to meet the needs of gifted students, we are harming not only those children but all of society, which benefits from their contributions. We must enable all students to realize their potential, including the gifted.□

Highlights of Research on Gifted Youth

The voluminous research on gifted and talented students provides educators with guidelines for serving this special population.

Identification. **Schools are often ineffective in identifying gifted students, especially in finding talent among children from poverty and minority backgrounds, among very young children, and among underachievers. Identification is most often based on intelligence tests; use of creativity tests or achievement tests is rare. Multiple data sources should be used to identify alternate types of giftedness and to specify appropriate program services.**

Acceleration. **Acceleration motivates gifted students by providing them with instruction that challenges them to realize their potential. Accelerated students show superior achievement in school and beyond. Despite the fears of some educators, acceleration does not damage the social-emotional adjustment of gifted youth.**

Grouping. **Grouping gifted and talented youth for all or part of the school day or week serves as a motivator. In special classes or cluster groups for the gifted, mutual reinforcement of enthusiasm for academic interests prevails. Removing gifted students from regular classrooms does not deprive other students of role models; instead, it allows them to be leaders and top performers.**

Overall, to provide for the gifted, we must upgrade the level and pace of instruction to fit their abilities, achievement levels, and interests. The only suitable enrichment is instruction on special enriching topics at a high level and a fast pace. We must also provide them with highly competent teachers and with opportunities to work with other gifted and talented youth.

1. The research and evaluation evidence has been reported mainly in articles in the *Roeper Review*, the *Journal for the Education of the Gifted*, and the *Gifted Child Quarterly*, while evaluation and development projects have been reported in *Gifted Child Today*, *Gifted International*, and *Gifted Education International*. A number of books and technical reports have also documented the findings of researchers, developers, and evaluators.

2. Feldhusen and Klausmeier 1959; Klausmeier and Feldhusen 1959; Klausmeier, Check, and Feldhusen 1960; and Feldhusen, Check, and Klausmeier 1961.

3. Stanley 1978; Stanley 1980; Stanley, Keating, and Fox 1974; Stanley, George, and Solano 1977; Stanley and Benbow 1982; Benbow and Stanley 1983; Stanley and McGill 1986.

4. Feldhusen, Proctor, and Black 1986; Proctor, Black, and Feldhusen 1986; Proctor, Feldhusen, and Black 1988.

5. Janos and Robinson 1985a, Janos 1987, Janos et al. 1988.

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