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ABSTRACT

This executive summary reports on a study which utilized meta-analysis and best-evidence synthesis techniques to evaluate 13 research studies on the academic, social, and psychological effects upon learners who are gifted and talented of three grouping practices: (1) ability grouping for enrichment; (2) mixed ability cooperative grouping for regular instruction; and (3) grouping for acceleration. It was concluded that the research showed strong, consistent support for the academic effects of most forms of ability grouping for enrichment and acceleration, but that the research is scant and weak concerning the socialization and psychological adjustment effects of these practices. Claims for the academic superiority of mixed ability grouping or for whole group instructional practices were not substantiated for gifted and talented learners. Guidelines are offered suggesting that: students who are gifted and talented should spend most of their school day with others of similar abilities and interests; cluster grouping of gifted students within an otherwise heterogeneously grouped classroom can be considered when a full time gifted program is not feasible; a cross-grade grouping option could be offered in the absence of a full time gifted program enrollment; gifted and talented students should be offered a variety of acceleration and enrichment based options; and mixed ability cooperative learning should be used sparingly for students who are gifted and talented. (15 references) (Author/DB)

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

Executive Summary*

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Number 1 in a Series of Papers Dealing with Research-Based Decision Making

* This Executive Summary is a condensed version of a longer paper that contains a comprehensive review and analysis of research on ability grouping. Information about how to obtain a copy of the full length paper can be obtained by contacting The National Research Center on the Gifted and Talented.

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The Relationship of Grouping Practices to the Education of the Gifted and Talented Learner: Research-Based Decision Making

ABSTRACT

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

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

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

The work reported herein was supported under the Javits Act Program (Grant No. R206R00001) as administered by the Office of Educational Research and Improvement, U.S. Department of Education. The findings do not reflect the position of the Office of Educational Research and Improvement or the U.S. Department of Education.

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

Karen B. Rogers, Ph.D.

EXECUTIVE SUMMARY

The recent debate on ability grouping has raised a number of educational issues for teachers and school administrators. In efforts to restructure or transform schools, thereby improving the general level of achievement for all students, many reformers have argued for the elimination of most forms of grouping by ability. They have also suggested that grouping be replaced by mixed-ability classrooms in which whole group instruction and cooperative learning are the major instructional delivery systems. In many cases this restructuring has included the elimination of accelerated classes and enrichment programs for the gifted and talented in the name of reform. "The Research" has been cited by these reformers as the rationale for such classroom changes (George, 1988; Slavin, 1987; Oakes, 1985). Unfortunately, the research does not appear to have been searched comprehensively, but the oversight is also understandable. With a literature base of over 700 studies on ability grouping (Kulik & Kulik, 1982) and over 300 studies on cooperative learning (Johnson, Johnson & Maruyama, 1983; Slavin, 1984), it is highly unlikely that any researcher has had the resources or time to make an effective analysis of these literature bases. In fact, there have been 13 syntheses of research in the past nine years, all of which represent analyses of parts of these bases. By analyzing 13 syntheses together, however, one can acquire a sounder understanding of what the research really has to say about grouping by ability in general and about grouping students who are gifted and talented for the purposes of enrichment and acceleration, in specific.

Two synthesis techniques have been developed in recent years to accommodate the huge research data bases we have accumulated over time: meta-analysis and best-evidence synthesis. In both techniques, the synthesizer must conduct an exhaustive search of the literature to locate all research, and then attempt to average across all the studies located to calculate a general effect for the instructional practice being synthesized. The metric of Effect Size, a procedure introduced by Gene Glass in 1976, has been used in these syntheses techniques (except the Gamoran & Berends synthesis, 1987) to communicate the comparative size of academic and nonacademic outcomes when all research on an instructional practice is combined. Effect Sizes of +.30 or higher are accepted as indicative of substantial gain of the experimental practice over its control (e.g., ability grouping vs. traditional classroom instruction without grouping). Such an Effect Size would indicate an approximate three months' additional gain on a grade-equivalent score continuum of a treatment group's achievement over the control group. Table 1 displays a summary of the Effect Sizes reported across the 13 syntheses for the variety of grouping practices currently used with students who are gifted and talented.

Ability Grouping for Enrichment

Across the five meta-analyses (Kulik & Kulik, 1982, 1984, 1990; Kulik, 1985; Vaughan, 1990), the two best-evidence syntheses (Slavin, 1987, 1990), and one ethnographic/survey research synthesis (Gamoran & Berends, 1987), the following conclusions can be drawn:

1. While full-time ability grouping (tracking) for regular instruction makes no discernible difference in the academic achievement of average and low ability students (Slavin, 1987, 1990; Kulik & Kulik, 1982, 1984, 1985, 1990), it does produce substantial academic gains for gifted students enrolled full-time in special programs for the gifted and talented (Kulik & Kulik, 1982, 1984, 1985, 1990; Vaughan, 1990).

2. High ability student groups have more extensive plans to attend college and are more likely to enroll in college, but the research has not been able to substantiate that this is directly influenced by grouping (Gamoran & Berends, 1987). Likewise, research has not been able to substantiate that there are marked differences in the quality of teachers who work with high ability students or in the instructional strategies and learning time apportioned in such classes. It is probable that the substantial gains in achievement reported for gifted and talented students in 6 of the 8 research syntheses is produced by the interaction of greater degrees of learning potential, teachers who are interested in their students and in their subject, and the willingness of gifted students to learn while in a classroom with other interested, high ability learners.

3. Ability grouping for enrichment, especially when enrichment is part of a within class ability grouping practice or as a pullout program, produces substantial academic gains in general achievement, critical thinking, and creativity for the gifted and talented learner (Vaughan, 1990).

4. Ability grouping, whether for regular instruction or enrichment purposes, has little impact on gifted students' self-esteem. When full-time grouping is initiated, there is a slight decrease in esteem, but in special programs for gifted students, there are no changes in self-esteem (Kulik & Kulik, 1984, 1990). Enrichment pullout programs show only a small but positive increase in self-esteem (Vaughan, 1990).

5. Ability grouping for the gifted produces a moderate improvement in attitude toward the subjects in which students are grouped. A moderate improvement in attitude toward subject has been found for all ability levels when homogeneously grouped on a full-time basis (Kulik & Kulik, 1982, 1990).

6. Ability grouping is not synonymous with "tracking" (Slavin, 1987, 1990). It may take many forms beneficial to gifted learners, including full-time enrollment in special programs or classrooms for the gifted, regrouping for special subject instruction, cross-grade grouping for specific subjects or for the entire school curriculum, pullout groups for enrichment, and within class ability grouping, as well as cluster grouping (Kulik & Kulik, 1990). The major benefit of each grouping strategy for students who are gifted and talented is its provision of the format for enriching or accelerating the curriculum they are offered (Kulik & Kulik, 1990). It is unlikely that grouping itself causes academic gains; rather, what goes on in the group does.

Cooperative Learning for Regular Instruction

Across the two major meta-analyses (Johnson, Maruyama, Johnson, Nelson & Skon, 1981; Johnson, Johnson, & Maruyama, 1983) and one best-evidence synthesis (Slavin, 1990) on the academic and nonacademic effects of mixed-ability cooperative grouping, the following conclusions may be drawn:

1. Cooperative learning in mixed-ability groups for regular instruction cannot be shown to be academically beneficial for gifted and talented learners. Likewise, there is no research below the college level to support cooperative learning in like-ability groups for gifted students (Robinson, 1990).

2. Although there is some evidence to support sizable academic effects for those forms of cooperative learning that incorporate individual task accountability (Slavin, 1990), little research has been reported which would allow this to be extrapolated to the gifted population.

3. Although there is some evidence to support sizable affective outcomes for mixed ability cooperative learning, particularly for the acceptance of culturally diverse and academically handicapped students (Johnson, Johnson & Maruyama, 1983; Slavin, 1990), no research has been reported which would allow this to be extrapolated to the gifted population (Robinson, 1990).

Grouping for Acceleration

Across the one meta-analysis (Kulik & Kulik, 1984) and one best-evidence synthesis (Rogers, 1991) on accelerative practices for gifted students, the following conclusions about grouping for acceleration can be drawn:

1. Grouping for the acceleration of curriculum for gifted students produces substantial academic gains for the forms of Nongraded Classrooms, Curriculum Compression (Compacting), Grade Telescoping (Rapid Progression at Junior or Senior High), Subject Acceleration, and Early Admission to College. Advanced Placement programs were found to produce moderate, nearly significant academic gains as well (Rogers, 1991).

2. Those forms of acceleration for which groups of gifted learners may be involved do not appear to have a direct impact on self-esteem, either positively or negatively (Kulik & Kulik, 1984; Rogers, 1991). It is apparent that a host of other environmental, personological, and academic variables are more directly involved with changes in self-esteem.

Recommendations for Practices Involving Ability Grouping

Based on conclusions drawn from the research syntheses, the following guidelines are offered for educators who are considering various grouping options for gifted students.

GUIDELINE ONE: Students who are academically or intellectually gifted and talented should spend the majority of their school day with others of similar abilities and interests.

Discussion: What forms this option may take are open: Both general intellectual ability grouping programs (such as School Within a School, Gifted Magnet Schools, Full-time Gifted Programs, or Gifted Classrooms) and full-time grouping for special academic ability (such as Magnet Schools) have produced marked academic achievement gains as well as moderate increases in attitude toward the subjects in which these students are grouped.

GUIDELINE TWO: The Cluster Grouping of a small number of students, either intellectually gifted or gifted in a similar academic domain, within an otherwise heterogeneously grouped classroom can be considered when schools cannot support a full-time gifted program (either demographically, economically, or philosophically).

Discussion: The "Cluster Teacher" must, however, be sufficiently trained to work with gifted students, must be given adequate preparation time and must be willing to devote a proportionate amount of classroom time to the direct provision of learning experiences for the cluster group.

GUIDELINE THREE: In the absence of full-time gifted program enrollment, gifted and talented students might be offered specific group instruction across grade levels, according to their individual knowledge acquisition in school subjects, either in conjunction with cluster grouping or in its stead.

Discussion: This "cross grade grouping" option has been found effective for the gifted and talented in both single subject and full-time programming (i.e., Nongraded Classrooms).

GUIDELINE FOUR: Students who are gifted and talented should be given experiences involving a variety of appropriate acceleration-based options, which may be offered to gifted students as a group or on an individual basis.

Discussion: It is, of course, important to consider the social and psychological adjustment of each student for whom such options are being considered as well as cognitive capabilities in making the optimal match to the student's needs.

GUIDELINE FIVE: Students who are gifted and talented should be given experiences which involve various forms of enrichment that extend the regular school curriculum, leading to the more complete development of concepts, principles, and generalizations.

Discussion: This enrichment could be provided within the classroom through numerous curriculum delivery models currently used in the field, or in the form of enrichment pullout programs.

GUIDELINE SIX: Mixed-ability Cooperative Learning should be used sparingly for students who are gifted and talented, perhaps only for social skills development programs.

Discussion: Until evidence is accumulated that this form of Cooperative Learning provides academic outcomes similar or superior to the various forms of ability grouping, it is important to continue with the grouping practices that are supported by research.

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Table 1
Effects Sizes Reported for
Research-Supported Gifted Program Options

Option	Academic Effect Size
Early Entrance to School	.36
Subject Acceleration	.49
Curriculum Compression (Compacting)	.45
Grade Skipping	.78
Enrichment (pullout) - curriculum extension	.65
Enriched Classes Ability Grouped	.33
Cross-grade Grouping (reading, math)	.45
Nongraded Classes	.38
Concurrent Enrollment	.36
Regrouping for Specific Instruction (reading, math)	.34
Advanced Placement	.29
Credit by Examination	.75
Cluster Grouping (specific differentiation)	.62
Separate Classes for Gifted	.33
Cooperative Learning	
Johnson's "Learning Together"	0
Slavin's TGT	.38
Slavin's STL (combination)	.30
Grade Telescoping	.56
Mentorship	.42

Note: The Effect Sizes listed cannot be directly compared with others in the table. Some represent one-time academic gains, while others may be possibly cumulative gains, progressively increasing the longer the practice is used. The quality of the criterion measures used varies greatly from practice to practice also, thereby confounding any cross-comparisons to be made.