

Javits Study: The Curriculum Compacting Study

Update: Javit's Study: The Curriculum Compacting Study Date (mm/dd/yy): // Title: Body: The following research study, "Why Not Let High Ability Students Start School in January? The Curriculum Compacting Study" was supported under the Javits Act Program as administered by the Office of Educational Research and Improvement, U.S. Department of Education. The most successful treatment group received the same treatment as other groups with the addition of peer coaching and/or consulting services. Local consultants provided the informal peer coaching throughout the year and provided 6-10 hours of organized peer coaching.

What is Curriculum Compacting?

Curriculum compacting (Renzulli & Smith, 1978), is an instructional technique which has been developed and field tested over the last fifteen years (Imbeau, 1991; Renzulli, Smith, & Reis, 1982) as part of a total educational program for gifted and talented students. It can be used, however, as part of any educational program for more capable students and has been mentioned by several other developers of programming models as a method for modifying curriculum for high ability students (Betts, 1986; Clifford, Runions, & Smith, 1986; Feldhusen, 1986; Treffinger, 1986). Tannenbaum has advocated a similar process called telescoping in which students "...complete the basics in the least amount of time thereby sparing themselves the tedium of dwelling on content that they either know already or can absorb in short order" (1986, p. 409). VanTassel-Baska has labeled a similar practice "compression of content" (1985, p. 51).

During the curriculum compacting process, a form entitled the Curriculum Compactor (Renzulli & Smith, 1978) is used by teachers to document the compacting services provided to students. The time saved through curriculum compacting is then used by the teacher to provide a variety of enrichment or acceleration opportunities for the student. Enrichment strategies might include: self-selected independent investigations, mini-courses, advanced content, mentorships, and alternative reading assignments. Acceleration might include the use of material from the next unit or chapter, the use of the next chronological grade level textbook or the completion of even more advanced work with a tutor or mentor.

The Need For Curriculum Compacting for High Ability Students:

The "dumbing down of textbooks"

Repetition in content

The mismatch between student ability and instruction

The Curriculum Compacting Study

The general purposes of the study were to: 1) provide training to teachers on how to modify curriculum for high ability students; 2) assess how teachers implemented the curriculum compacting technique; and 3) assess the effects of curriculum compacting on

students' achievement, content area preferences, and attitudes toward learning. Seventeen research questions, addressed through qualitative and quantitative analyses, guided this study.

Sample

A sample of 27 school districts and approximately 436 second through sixth grade classroom teachers throughout the country from Collaborative School Districts that are a part of the National Research Center on the Gifted and Talented (NRC/GT) were selected for this study. To participate, districts had to meet two criteria: no previous training or implementation of curriculum compacting and a willingness to accept random assignments to a treatment or control group. Efforts were made to recruit districts with elementary school populations that included economically disadvantaged, limited English proficient, and handicapped students. The districts participating in the study represented a wide range of elementary schools from across the country, ranging from a small rural school in Wyoming to a magnet school for Hispanic students in California.

After receiving staff development about curriculum compacting and the characteristics of students who need to have their curriculum modified, teachers were asked to select one or two students from their classroom. These students had either been identified as gifted and talented and participated in a district's program, or had clearly demonstrated superior ability and achievement in a content area that indicated the student would benefit from curriculum compacting.

Several subtests of out-of-level (one grade higher) Iowa Tests of Basic Skills were given to the 783 participating students in the fall. The median percentile for all students in the out-of-grade-level reading and math concepts subtests was 93. The median percentile in the out-of-level math computation subtest was 90. These data indicate that teachers selected students for whom compacting was necessary.

Procedure

Three treatment groups which received increasing levels of staff development were used to examine the most efficient but effective method for training teachers to modify curriculum. All treatment group teachers received the first staff development session which provided two half hour videotapes and a book about the compacting process. After receiving the first staff inservice session in October, 1990, teachers were asked to select one or two qualified students from their classroom. Teachers in Treatment Group 2 received the videotape training and book, as well as approximately two hours of group compacting simulations conducted by the local gifted and talented resource teacher or consultant. The simulations developed by Starko (1986) have been a standard resource in this type of training. Treatment group 3 received the same training as Treatment Group 2, with the addition of local peer coaching and/or consultant services. Local consultants provided informal peer coaching throughout the year and provided 6-10 hours organized peer coaching.

Each district appointed a research liaison for the curriculum compacting research study who was usually a director or teacher in the gifted program in the district. The liaison worked closely with project staff at the NRC/GT throughout the year. Contact was made regularly with each district at least twice each month, and liaisons were encouraged to call upon the NRC/GT staff for information and assistance as needed. All contact was documented and progress reports were completed by the NRC/GT project staff. Additionally, anecdotal reports were recorded by district liaisons when significant events relating to the compacting process occurred in the district.

Instrumentation

Several pre and post instruments were administered to students and teacher who participated in the study. Student instruments included several subtests of the Iowa Test of Basic Skills, the Arlin Hills Attitude Survey Toward School Learning Processes (Arlin, 1976), and the Content Area Preference Scale (Kulikowich, 1990). Teacher instruments included the Stages of Concern Questionnaire, the Teacher Data Form, the Compactor Form (Renzulli & Smith, 1978), The Curriculum Compactor Assessment Form (Reis, 1991), the Classroom Practices Questionnaire and the Anecdotal Incident Report Form.

Results

The following statements summarize the results of the curriculum compacting study:

95% of the teachers were able to identify high ability students in their classes and document students' strengths.

80% of the teachers were able to document the curriculum that high ability students had yet to master, list appropriate instructional strategies for students to demonstrate mastery, and document an appropriate mastery standard.

Approximately 40-50% of traditional classroom material could be eliminated for targeted students in one or more of the following content areas: mathematics, language arts, science and social studies.

The most frequently compacted subject was mathematics, followed by the language arts. Science and social studies were compacted when students demonstrated very high ability in those areas.

Teachers in Treatment Group 3 used significantly more replacement strategies than did teachers in Treatment Groups 1 or 2.

Replacement strategies consisted of three broad instructional activities: enrichment, acceleration and other (i.e., peer tutoring, cooperative learning, correcting class papers).

While approximately 95% of teachers used enrichment as a replacement strategy, 18% of teachers also used acceleration.

Replacement strategies did not often reflect the types of advanced content that would be appropriate for high ability students, indicating that additional staff development, as well as help from a specialist in the district, would be beneficial.

Approximately 60% of the replacement strategies reflected students' interests, needs and preferences.

When teachers eliminated as much as 50% of the regular curriculum for gifted students, no differences in the out-of-level post achievement test (ITBS) results between treatment and control groups were found in reading, math computation, social studies, and spelling.

In science, Treatment Group 1 scored significantly higher on the out-of-level post test (ITBS) than did the control group whose curriculum was not compacted.

Students in all treatment groups, whose curriculum was compacted in mathematics scored significantly higher in the math concepts post test (ITBS) than did control group students whose curriculum was not compacted in mathematics.

A substantial difference was found among treatment groups with respect to the overall quality of curriculum compacting as documented on the Compactor Form. Treatment Group 3 had higher quality compactors than did Treatment Groups 1 or 2.

Anecdotal records indicated that three different types of request were made by teachers as they compacted curriculum:

Additional time for students to work with the gifted specialist (if one was available)

Assistance in locating additional appropriate materials

Consultant assistance as teachers worked through the compacting process

A majority of the teachers in all treatment groups said they would compact curriculum again; some said they would try again if they had additional information and assistance from a specialist. These results demonstrate the following:

Curriculum compacting can be implemented in the regular classroom to provide more appropriate educational experience for gifted and talented students.

Staff development and peer coaching can improve teachers' use of the compacting process.

Teachers will need additional training and help to be able to substitute appropriately challenging content and work to students whose curriculum has been modified.

Curriculum compacting can have positive effects on students.

Significance

This study examined how teachers acquire the skills necessary to implement curriculum compacting in the classroom and provides school personnel with information regarding successful staff development procedures for adopting this innovation for the bright students in their district. Teachers who received the most help in implementing compacting (Treatment Group 3) were most successful in carrying out the various steps in the process. Implementing the process, however, means that teachers will need materials and assistance if they are to substitute appropriate challenging materials for targeted students. This assistance must be provided in several ways: locating and/or developing pretest instruments and finding and/or creating appropriately challenging and rigorous replacement strategies. Teachers cannot be encouraged to eliminate up to 40-50% of content if alternative materials for students are not provided. Accordingly, district policies that do not allow classroom teachers to use out-of-grade level textbooks need to be changed to enable classroom teachers to use resources at hand to provide effective instruction.

The amount of content that was eliminated should indicate that more challenging textbooks, curricular materials, and homework can be provided to high ability students. Most teachers involved in this study also indicated that they were able to extend the compacting process to students who would not have been identified for a gifted program. Instead of providing compacting to 1-2 students originally targeted for the study, some teachers targeted 10-12 students to receive the service. This certainly would indicate that many other students can benefit from compacting and that if teachers are provided with staff development in compacting, they will eventually use this practice for other students. Compacting may then have significance for many other students.

It also seems clear from test results that compacting a certain percentage of a student's curriculum did not result in any detrimental changes in achievement test scores of targeted students, and in fact, in some content areas, slight gains were realized. This information should provide both encouragement and reassurance to administrators, teachers, and parents about the use of this procedure and the elimination of large amount of content that is often unnecessary for high ability students.

Conclusion

Clearly, the curriculum of the elementary students in this study could be modified and large amounts of curriculum could be eliminated. A high percentage of curriculum in all content areas were eliminated for these students. Curriculum compacting can be implemented in the regular classroom to meet the needs of academically able elementary students, and the findings of this study indicate that staff development and peer coaching can improve teachers' use of the compacting process. This study also indicates that teachers will need more help and staff development if they are to substitute appropriately challenging advanced work for high ability students.

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