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Research Related to the Schoolwide Enrichment Triad Model¹

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The Schoolwide Enrichment Triad Model (SEM)

The Schoolwide Enrichment Triad Model (SEM) evolved after 15 years of research and field testing by both educators and researchers (Renzulli, 1988). It combined the previously developed Enrichment Triad Model (Renzulli, 1977) with a more flexible approach to identifying high-potential students called the Revolving Door Identification Model (Renzulli, Reis, & Smith, 1981). This combination of services was initially field tested in 11 school districts of various types (rural, suburban, and urban) and sizes. Research studies were conducted which indicated positive growth for students, even those who were not identified for gifted program services (Reis, 1981). These and other field tests resulted in the development of the SEM (Renzulli & Reis, 1985), which has been widely adopted throughout the country. Although separate studies on the model have been documented based on field tests in schools with widely differing socioeconomic levels and program organizational patterns (Cooper, 1983; Olenchak, 1988; Olenchak & Renzulli, 1989; Reis, 1981), the research on the SEM has not to date been considered in its entirety.

Services Provided in the SEM

In the SEM, a talent pool of 15%-20% of above-average ability/high-potential students is identified through a variety of measures, including achievement tests, teacher nominations, assessment of potential for creativity and task commitment, as well as alternative pathways of entrance (self-nomination, parent nomination, etc.). High achievement test and IQ test scores automatically include a student in the talent pool, enabling those students who are underachieving in their academic school work to be included.

Once students are identified for the talent pool, they are eligible for several kinds of services. First, interest and learning styles assessments are used with talent pool students. Informal and formal methods are used to create or identify students' interests and to encourage students further to develop and pursue these interests in various ways. Learning style preferences assessed include projects, independent study, teaching games, simulations, peer teaching, programmed instruction, lecture, drill and recitation, and discussion. Second, curriculum compacting is provided to all eligible students; that is, the regular curriculum is modified by eliminating portions of previously mastered content. This elimination or streamlining of curriculum enables above-average students to avoid repetition of previously mastered work and guarantees mastery while simultaneously finding time for more appropriately challenging activities (Reis, Bums, & Renzulli, 1992; Renzulli, Smith, & Reis, 1982). A form, entitled the Compactor (Renzulli & Smith ' 1978a), is used to document which content areas have been compacted and what alternative work has been substituted. Third, the Enrichment Triad Model offers three types of enrichment experiences. Type I, II, and III Enrichment are offered to all

students; however, Type III Enrichment is usually more appropriate for students with higher levels of ability, interest, and task commitment.

Type I Enrichment consists of general exploratory experiences such as guest speakers, field trips, demonstrations, interest centers, and the use of audiovisual materials designed to expose students to new and exciting topics, ideas, and fields of knowledge not ordinarily covered in the regular curriculum. Type II Enrichment includes instructional methods and materials purposefully designed to promote the development of thinking, feeling, research, communication, and methodological processes. Type II training, usually carried out both in classrooms and in enrichment programs, includes the development of (a) creative thinking and problem solving, critical thinking, and affective processes; (b) a wide variety of specific learning-how-to-learn skills; (c) skills in the appropriate use of advanced-level reference materials; and (d) written, oral, and visual communication skills.

Type III Enrichment is the most advanced level in the Enrichment Triad Model. Although Types I and II Enrichment and curriculum compacting should be provided on a regular basis to talent pool students, the ability to revolve into Type III Enrichment depends on an individual's interests, motivation, and desire to pursue advanced level study. Type III Enrichment is defined as investigative activities and artistic productions in which the learner assumes the role of a first-hand inquirer thinking, feeling, and acting like a practicing professional, with involvement pursued at as advanced or professional level as possible given the student's level of development and age. The most important feature of the model is the "flow" or connection among the experiences. Each type of enrichment is viewed as a component part of a holistic process that blends present or newly developed interests (Type I) and advanced level thinking and research skills (Type II) with application situations based on the modus operandi of the first-hand inquirer (Type III).

Research Related to Underserved Populations

Emerick (1988) and Baum, Renzulli, and Hébert (in preparation) have investigated underachievement of high potential students. Taylor (1992) studied students at a vocational-technical school, a population rarely considered in previous research about high-ability students. Baum (1985, 1988) examined highly able students with learning disabilities, identifying both characteristics and programmatic needs.

Underachievement Emerick's 1988 study of gifted students' perceptions of factors relating to their reversal of underachievement did not purposefully investigate the Schoolwide Enrichment Model. Nevertheless, this research supports the use of various components within the SEM for use with underachieving students. Emerick examined the perceptions of 10 subjects, ages 14-20, who had improved their below average academic performance without participating in a planned intervention. Emerick used a qualitative, methodological approach; she collected data through interviews and written questions and used inductive analysis to reveal themes and patterns. Results indicated that gifted underachievers who had reversed the underachievement pattern perceived six factors as contributing to the reversal process: the gifted underachiever, the parent, the teacher, the nature and content of the class, the personal goals of the underachiever, and the out-of-school interests of the student. Specific personal characteristics were attributed to gifted underachievers who had reversed the underachievement pattern. These characteristics included a high degree of individuality and independence, a desire to be productive, and a need for personal interaction while involved in learning experiences. The components of the Triad Model that Emerick believes have a possible effect on the reasons for the reversal of underachievement include: the use of curriculum compacting, exposure to Type

I experiences, opportunities to be involved in Type III studies and an appropriate assessment of learning styles to provide a match between teachers who understand the unique learning modes and students who may be underachieving (Emerick, personal communication, January 12, 1992).

Based on the findings of Emerick and others, Baum, Renzulli, and Hébert (in preparation) investigated the use of the SEM as a systematic intervention for reversing underachievement. Using a qualitative case study approach, 12 teachers who had received training in the model selected 17 students identified as gifted who were underachieving in their academic classroom settings. The 17 students ranged in age from 8-13 and included five girls and twelve boys. All students were guided through a Type III study by their referring teacher. Various student data were collected including: ability and achievement tests, grades, classroom records, work samples and anecdotal information. Several findings emerged regarding the use of Type III as an intervention to reverse underachievement. First, a variety of factors contributed to the underachievement of gifted students including: emotional issues (such as dysfunctional families); social and behavioral issues (such as the influence of an inappropriate peer group); the lack of an appropriate curriculum many (students not motivated by the regular curriculum); and either a suspected learning disability or poor self-regulation. The most compelling finding of this research study was the positive gains made by underachieving students through their involvement in the Type III intervention. Almost all students continued to make progress during the course of the year, and in the year following the intervention, 84% of the subjects were no longer underachieving.

High-ability Students with Learning Disabilities

In another study dealing with underserved gifted students, Baum (1985) investigated the characteristics which distinguish High-ability/LD students from learning disabled students with average cognitive ability and high-ability students. High-ability or learning disabled students (N=112) in grades four through six participated in the study. A variety of instruments were used to assess and compare cognitive and motivational patterns in three groups: High-ability, High-ability/LD, and LD/Average. Discriminant function analyses indicated that the three groups are distinguishable. As might be expected, the greatest group difference existed between high-ability nondisabled students and both learning disabled populations. A second discriminant function provided information about differences between the two learning disabled populations. Baum's analysis revealed important differences among the three groups, although the High-ability/LD vs LD/Average distinction was more subtle. High-ability students were more creative and enjoyed a higher sense of academic self-efficacy than those in either learning disabled group. High-ability/LD students displayed more interest in creative activities and were viewed as more creative by their teachers than students of the LD/Average group. High-ability/LD students also caused the most classroom disturbance and perceived themselves as less efficacious in academic tasks. Based on these findings, Baum recommended the SEM as one vehicle to meet the unique needs of gifted students with learning disabilities because of the emphasis on strengths, interests, and learning styles.

Baum (1988) later used the SEM with this population in a pilot program. Seven bright learning disabled youngsters in grades 4 - 5 met for 2 1/2 hours a week over a nine-month period to develop their strengths and interests through challenging enrichment activities. Six of the seven students showed gains in self-esteem, learning behavior, and creative productivity. Type I and Type II experiences were provided to spark the children's interests in a future investigation. To expose the students to the process of creative production, a student-initiated

group project was undertaken. The students wrote and illustrated a unique children's book. Upon completion of the book, the students were encouraged to initiate individual investigations. Conferences were held with each student to assist in identifying a real problem, defining a purpose and an audience for the study, and selecting a final product. A step-by-step management plan and a contract with clear expectations were developed for each student to facilitate product completion.

Short-term findings included: the completion of high-quality products by six of the seven students; improvement in behavior, specifically the ability to self-regulate time on task for as much as 2 1/2 hours; improvement in self esteem; and the development of specific instructional strategies to enhance the potential of the gifted learning disabled student.

SEM as a Curricular Framework

Karafelis (1986) investigated the use of the SEM as a curriculum framework in language arts. This comparative study involved 80 fifth and sixth grade students and the use of two different language arts curriculum based on pre-specified learning objectives. The experimental group was provided a drama curriculum based on Triad by classroom teachers who had received training in the model. The curriculum included poetry, readers' theater, mime, improvisation, and playwriting. The treatment lasted for one hour each day for a six month period. Four intact classes were used and gifted students were compared to average and low ability students among classes. The control group continued the use of traditional texts and workbooks, as had been the standard in the district. No significant differences were found between treatment and control groups with respect to reading comprehension scores, as measured by the Stanford Diagnostic Reading Test, a valid and reliable measure of both literal and inferential reading comprehension. According to Karafelis, the drama program, entitled Tri-Art Drama, was as effective a method of teaching reading comprehension as the traditional basal reading program used by the control group (Karafelis, 1986, p. 99). Karafelis also found that the highest group on cognitive assessment measures achieved higher scores than lower cognitive ability groups. "These results indicated that the higher a subject's cognitive ability, the greater his/her achievement in reading comprehension will be" (p. 116). **Although the original Enrichment Triad Model (Renzulli, 1977) was not created to be a curriculum development model, it does provide an organizational framework that enables teachers and researchers to substitute the three types of enrichment experiences for more traditional forms of instruction.** In the drama curriculum based on Triad created in this study, enrichment experiences based on drama skills were substituted for a traditional basal reading curriculum, and students receiving the experimental treatment did equally well on achievement tests as the control group.

Research Relating to Learning Styles and Curriculum Compacting

Smith (1976) and Stewart (1979) investigated the use of learning styles. Imbeau (1991) and Reis, et al. (1992) studied on the effects of curriculum compacting.

Learning Styles The instrument suggested for use in the analysis of learning styles is the Learning Styles Inventory (LSI) (Renzulli & Smith, 1978b). The LSI is a research-based instrument designed to guide teachers in planning learning experiences that take into account the learning style preferences of students within their classrooms. The instrument consists of 65 items that provide information about student attitude toward lecture, projects, drill and recitation, peer teaching, discussion, teaching games, independent study, simulation, and programmed instruction.

The initial study of the effectiveness of the LSI was carried out by Smith (1976). In addition to reporting validity and reliability data, this study examined the relationship of learning style to student achievement, motivation and interest in subject matter, as well as the relationship between traditional measures of school success and specific achievement, motivation, and interest. Overall, the results of this study confirmed the fact that matching learning style significantly enhances educational outcomes. Students who were taught in their preferred method achieved better, were more interested in the subject matter, liked the way the subject was taught, and wanted to learn other school subjects in the same way. Motivation was not significantly different for students who were matched to instruction meeting their preferred learning modes when compared to unmatched students. It should be noted that the learning style variable also explained a significant portion of the variation in achievement and interest that was unaccounted for by such traditional predictors of school success as IQ and prior achievement.

Stewart (1979) investigated the difference in preferred learning style between gifted students and students in the general population. Her results indicated that gifted students differ significantly from students in the general population, with lecture, independent study, discussion, and projects contributing most to the differences between the two groups. Lecture showed the greatest variation, with students in the general population showing a stronger preference for this style of instruction than gifted students. Stewart also found that grade level, sex, locus of control, and favorite subject significantly affected learning style references. Based on these findings, it was concluded that gifted students tend to prefer instructional methods that emphasize independence while students in the general population prefer instructional methods with more structure. Stewart concluded that while many factors influence learning style preferences, the assessment of learning style appears necessary for planning appropriate educational programs for various subgroups of students.

Curriculum Compacting

Imbeau (1991) examined the role of teachers' attitudes toward curriculum compacting with regard to the implementation of the procedure. Four groups of teachers (three treatment and one control) representing grades 1 through 12 from a large urban district comprised the sample (N=166) for her study. The treatments consisted of a full day training session conducted by the researcher with three different follow-up strategies. An instrument developed by Imbeau, the Curricular Modification Survey, was used to assess teachers' attitudes toward curricular modifications. The regression analyses indicated that group membership was a significant predictor of posttest teachers' attitudes. Follow-up t-tests using adjusted means revealed that for the group of teachers that had been instructed to consult with another teacher (peer coaching), significant differences were found ($p < .05$) when compared to the control group of teachers who did not receive training or follow-up services.

A study that was recently completed at the University of Connecticut's National Research Center on the Gifted and Talented (NRC/GT) (Reis et al., 1992) examined strategies that teachers use to compact curriculum so that it accommodates the specific strengths of high-ability students. The study further examined the kinds of replacement activities that can be used to provide more appropriate levels of curricular challenge. A sample of 27 school districts and approximately 465 second- through sixth-grade classroom teachers throughout the country from NRC/GT collaborative school districts were selected for this study. 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. Teachers from a fourth set of classrooms served as a control group and, therefore, received no training.

Three important findings emerged from the study. The first might best be described as the more-for-less phenomenon as 40 to 50% of traditional classroom material was compacted for targeted students in one or more content areas. When teachers eliminated as much as 50% of regular curricular activities and materials for targeted students, no differences were observed in post test achievement scores between treatment and control groups in reading, math computation, social studies, and spelling. In science, the students in Treatment Group 1 whose curriculum had been eliminated by 40-50% scored significantly higher in the Iowa Test Basic Skills (ITBS) than their peers in the control group. Students whose curriculum was compacted in mathematics by 40 to 50% scored higher on the post ITBS on the math concepts than their control group counterparts whose curriculum was not compacted. Second, 95% of the teachers in the study were able to identify high-ability students in their classrooms and to document individual student strengths indicates that teachers are able to identify high-ability students in their classrooms. Finally, although the majority of teachers provided various types of curricular activities to students whose curriculum was compacted, replacement strategies often did not reflect the types of advanced content that would be appropriate for high-ability students. This finding indicates that additional staff development is necessary, especially as it relates to appropriately challenging replacement strategies. This finding was confirmed through anecdotal records, which indicated that teachers would like more access to consultant assistance from enrichment or gifted education specialists, and more training and assistance in locating and using appropriate enrichment materials.

Longitudinal Research on SEM

As reported earlier, Delcourt (1988) identified 18 secondary school students who exhibited creative/productive behavior by consistently engaging in first-hand investigations of self-selected topics (Type III studies) both in and out of school. After a three-year interval in a longitudinal study, subjects were sent a questionnaire focusing on their interests, educational and professional experiences, career plans, and projects (Delcourt, in press). Results indicated that students maintained similar or identical career goals from their plans in high school and major fields of study in colleges. College students were satisfied completing projects related to their courses or their professions since these assignments coincided with their interests and goals. This apparently made their investigations easier to complete. By contrast, three years ago they reported little or no relation between personally initiated and assigned high school projects. Some of these young adults were not particularly concerned with high levels of attainment in their careers, but rather with good relationships with friends and family. Overall, the young adults who participated in the follow-up study reported being satisfied with their academic and professional choices. Perceptions of their professional success will be sought in a continuation of this longitudinal study. Based upon each student's level of involvement with his or her investigations and the quality of their projects, Delcourt's study supports the concept that adolescents and young adults can be producers of information.

In an examination of students who participated in a Triad program for almost a decade, Hébert (1993) found several benefits of program involvement. Nine senior high school students from the program underwent extensive interviews concerning their educational experiences 10 years after their involvement in the program. The students selected for the study were chosen because of the creative productivity (Type IIIs) they exhibited during their elementary TAG Program experience. The interviews with the students concerning their Type III experiences

were transcribed and analyzed for themes. Five major findings from the study provide insightful information for educators responsible for implementing programs for high-ability students. The findings were: (1) Type III interests of students affect post-secondary plans, (2) creative outlets are needed in high school, (3) as decrease in creative Type III productivity occurs during the junior high experience, (4) the Type III process serves as important training for later productivity and (5) non-intellectual characteristics with students remain consistent.

Conclusion

During the last decade, a great deal of research has been conducted on The Schoolwide Enrichment Triad Model (SEM) in a variety of educational settings and in schools that serve diverse ethnic and socioeconomic populations. In addition to these formal research studies, evaluation reports have been prepared by many of the hundreds of school districts across the world which have adopted the model. This review incorporates both kinds of evidence.

The results of this synthesis of research on the SEM must be interpreted with caution. The design of most of the studies was nonexperimental and descriptive and, as such, does not allow causal conclusions to be drawn between the model and the various outcomes described in this article. One example may highlight the difficulties involved in this type of field-based educational research. Starko, (1986) examined the effects of the SEM on creative productivity and self-efficacy by comparing two groups of subjects who were either involved for 4 years in an SEM program or who were not involved in any enrichment program. The data collected supported the relationship between students' Type III projects and creative productivity both within and outside the program. However, the quasi-experimental nature of the study enables alternative explanations to be considered for this finding, including differences in group ability or achievement, varying curricula and/or instructional strategies, or any of a number of other social or cultural variables relative to the two districts which participated in the research.

Given these limitations, the research reviewed in this article suggests that the use of this programming model:

1. favorably influences teachers' instructional practices
2. improves teachers' attitudes toward the education of gifted students and of elementary students' attitudes toward learning and self-concept
3. is associated with positive changes in many aspects of schooling including instructional activities and student projects
4. encourages creativity and task commitment in targeted students
5. encourages more diverse and sophisticated student products
6. provides appropriate intervention for special populations of gifted students, including LID gifted and those who are identified as underachieving
7. assists many students in traditional programs for the gifted as well as high-ability students in vocational/ technical schools to plan appropriate career choices
8. can provide an appropriate curricular framework for all students, especially when the implementation of SEM includes the use of learning styles, interests, and curriculum compacting.

Research on the SEM also suggests that the model may improve aspects of high-ability students' school experience, including classroom climate, instructional processes, students' self-concept, attitudes toward learning, and postsecondary plans, as well as administrative support and staff morale.

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