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Using SEM Pedagogy to Inspire Future Leaders and Change Agents[1]

Sally M. Reis & Joseph S. Renzulli

Introduction

How do we define and develop giftedness in ways that develop the power to change lives and create a positive moral ethic in young people? And how can we encourage high potential young people to use their creative and investigative skills for the production of social capital? Our work has focused on this question for over four decades and applies the Schoolwide Enrichment Model (SEM) to the development of gifts and talents as described in our Three-Ring Conception of Giftedness (Renzulli, 1978; Renzulli & Reis, 2021). In this approach, students apply their above-average abilities, task commitment, and creativity to an area of interest or a problem that they want to solve. Our pedagogical approach for dealing with curriculum and instruction is called the Enrichment Triad Model (Renzulli, 1977), the curricular core of the SEM (Renzulli & Reis, 1985; 1997; 2014).

In this chapter, we describe the SEM, the Enrichment Triad Model and summarize some of our decades of work in this approach, emphasizing that we believe that the most important predictor of subsequent creative productivity are the creation and enhancement of students interests, the development of their task commitment, and the opportunity for young people to learn how to use their talents to improve their world. The SEM provides enjoyable learning experiences that can and do contribute to students' choice of career and work, and their commitment to do important creative work throughout their lifetimes. Our SEM talent development approach underlies our belief that the major purpose of talent development programs should be to increase the world's reservoir of creative and productive young people who use their talents for the collective good of our planet.

The Schoolwide Enrichment Model

The SEM infuses various types of enrichment practices into all aspects of any school curriculum to include certain types of enrichment activities for all students and some more intensive opportunities for students with the abilities, interests, and motivation to pursue them. The explanatory information about SEM is organized around the three major service delivery components listed on the face of the cube in Figure 1. The three major service delivery components should be viewed as brought to bear on the three school organizational structures listed on the top of the cube.

[1] An extended version of this article including case studies can be found in The Palgrave Handbook of Transformational Giftedness for Education (2022), edited by Robert J. Sternberg, Don Ambrose & Sareh Karami.

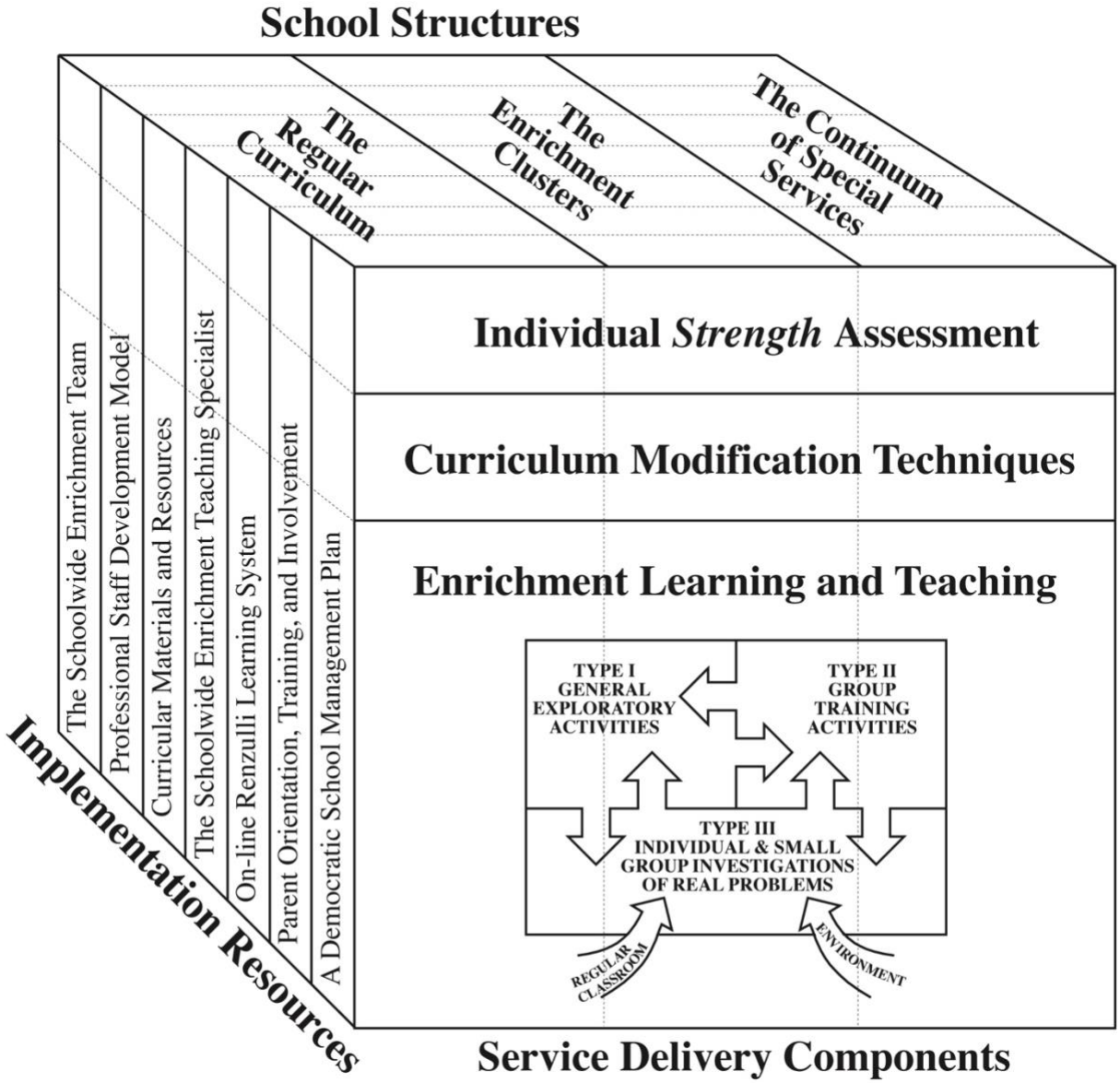


Fig. l: The Schoolwide Enrichment Model

The Enrichment Triad Model (Renzulli, 1977) is the curricular core of the SEM depicted in Figure 1 under Enrichment Teaching and Learning. It was developed over four decades ago as a framework for teachers to help guide children develop their gifts and talents. Using the Triad Model, students, with the support, guidance, and instruction of their teachers, learn to identify problems, areas of concern, or topics of intense interest. The Triad is explained in depth later in the chapter but its focus has always been to expose students to new ideas and directions for their talent development (Type I), train them in authentic methods and critical and creative thinking so that they can pursue work like junior professionals (Type II), and enable them to use their interests and methods to pursue independent or small group work in an area of interest (Type III). Whenever possible, that work leads them to satisfy their interests, solve a problem, produce a product or service, and hopefully, pursue an idea that will make things better for others. This is

exactly why in many schools and classrooms where SEM is used, teachers start the process of Type III Enrichment by asking students to identify and help solve a problem that exists in their school, community, town, city, state, or region. Another question that is often the basis of students' initial Type III studies are: What can you do to make your school, town, or community a better and happier place to live? How can you be instrumental to develop that process?

The Background of Creative Productive Giftedness

Renzulli (2012) proposed a theoretical model for gifted education in the 21st Century that includes the Three-Ring Conception of Giftedness, the Enrichment Triad Model, and Operation Houndstooth, explained below. Together, these frame our approach to talent development within the Schoolwide Enrichment Model. Our goal is to help young people with high potential to become ethical creative producers who assume leadership roles as adults and make a positive difference in the world. The components that most influence our interpretation of transformational giftedness include the following: The Three-Ring Conception of Giftedness (Renzulli, 1978; Renzulli & Reis, 2021) theorizes that giftedness is a dynamic construct that arises in some individuals, some of the time, in the form of gifted behaviors. *Gifted behaviors* under this conception occur when individuals apply their above-average ability, creativity, and task commitment to accomplish a specific goal, such as creating a product, putting on a performance, or providing a service. Students who participate in advanced work, using this conception, are those who demonstrate or show the potential for demonstrating gifted behaviors, and who use these gifts to pursue areas of interest or solve problems that can make the world a better place. We call this definition *creative-productive giftedness*, as it is popular with educators who instinctively understand that scores on IQ tests and other measures of cognitive ability do not identify students who have the potential to develop original work and products that are designed to have an impact and make change.

SEM learning environments are designed to promote creative-productive giftedness—they emphasize the use and application of content and thinking skills in an integrated, inductive, and real-problem-oriented manner. The role of the student is transformed from that of lesson learner to firsthand inquirer. Our SEM approach differs from other methods for developing academic gifts and talents as it focuses on an inductive, investigative, and inquiry mindset, rather than a preponderance of memory related information. These skills include the development of a broad range of thinking skills, the acquisition and retrieval of relevant information (including just-in-time information in addition to textbook information), the use of a broad range of executive function skills, and options for product formats, expression style preferences, and audience targeting. Emphasis is, of course, on the *application* of gathered information and skills to some tangible product, performance, presentation, or social oriented service project. In other words, our definition of creative-productive giftedness enables students to choose to work on problems and areas of study which is relevant to them in the hope that it will have an impact on one or more desired audiences. We often define the role of students doing these kinds of projects as thinking, feeling, and doing like the practicing professional, even if at a more junior level than adult scientists, writers, artists, or other professionals. Work in these areas can often be escalated to important and personally meaningful projects that have applications for solving problems and making a difference in society. For decades, we have argued that the creative and productive people of the world, the producers rather than consumers of knowledge, are those who have transformed our world.

Operation Houndstooth describes several personality and environmental factors that interact with ability, creativity, and task commitment and may lead to socially constructive gifted behaviors (Renzulli, Koehler & Fogarty, 2006). It is named houndstooth for the original graphic in which the Three-Ring Conception was embedded in a houndstooth background because people frequently raised questions about the three rings. The black and white houndstooth graphic conveys the interaction between personality traits and environmental conditions that contribute to creative productivity. This approach describes organizational and personal executive functions that successful, altruistic leaders possess and that are desirable to develop in young people, with traits clustered into five factors: *action orientation, realistic self-assessment, social interactions, awareness of the needs of others, and altruistic leadership.*

In addition to cognitive contributors to the development of high performance, a number of other factors referred to by Renzulli (2005) as "intelligences outside the normal curve" have been found to play a role in the accomplishments of highly effective young people and adults. New additions to our conception of giftedness focus on two clusters of co-cognitive traits that deal with characteristics related to using one's talents to create social capital by doing good works and applying executive function skills to the development of action-oriented products. These traits are not as easily measured as cognitive abilities, but they are important contributors to creative productivity that we hope to develop in high potential young people. The goal of this work is to create strengths that foster socially constructive virtues. Financial and intellectual capital are the well-known forces that drive the economy and result in generating highly valued material assets, wealth production, and professional advancement—all important goals in a capitalistic economic system. Social capital, on the other hand. is a set of intangible assets that address the collective needs and problems of other individuals and our communities at large. Also important in pursuing this work were our own observations and teaching experiences with young people. Of course, it should be noted that capitalism can represent an opportunity for talented young people to make a difference in the world when coupled with the desire to do good and ethical work. And research about capitalism by talented young people can enhance our future understandings of its role in our society. One thing is clear to us after our decades of work in this field—and that is, if we want high potential young people to eventually assume leadership positions, we must encourage them early in life to use their talents to make the world a better place. Research on Operation Houndstooth (Renzulli, 2002) resulted in the identification of the following six factors and subfactors related to the production of positive social capital presented in Figure 2.

Subsequent research found that research on Houndstooth-oriented activities led to the constructive development of gifted behaviors in young people, demonstrating that students can became creative producers for social change, as opposed to merely doing work for grades or other forms of external rewards (Renzulli et al., 2006; Sands & Heilbronner, 2014). This work helped us to better understand why some people mobilize their interpersonal, political, ethical, and moral realms of being in such ways that they place human concerns and the common good above materialism, ego enhancement, and self-indulgence.

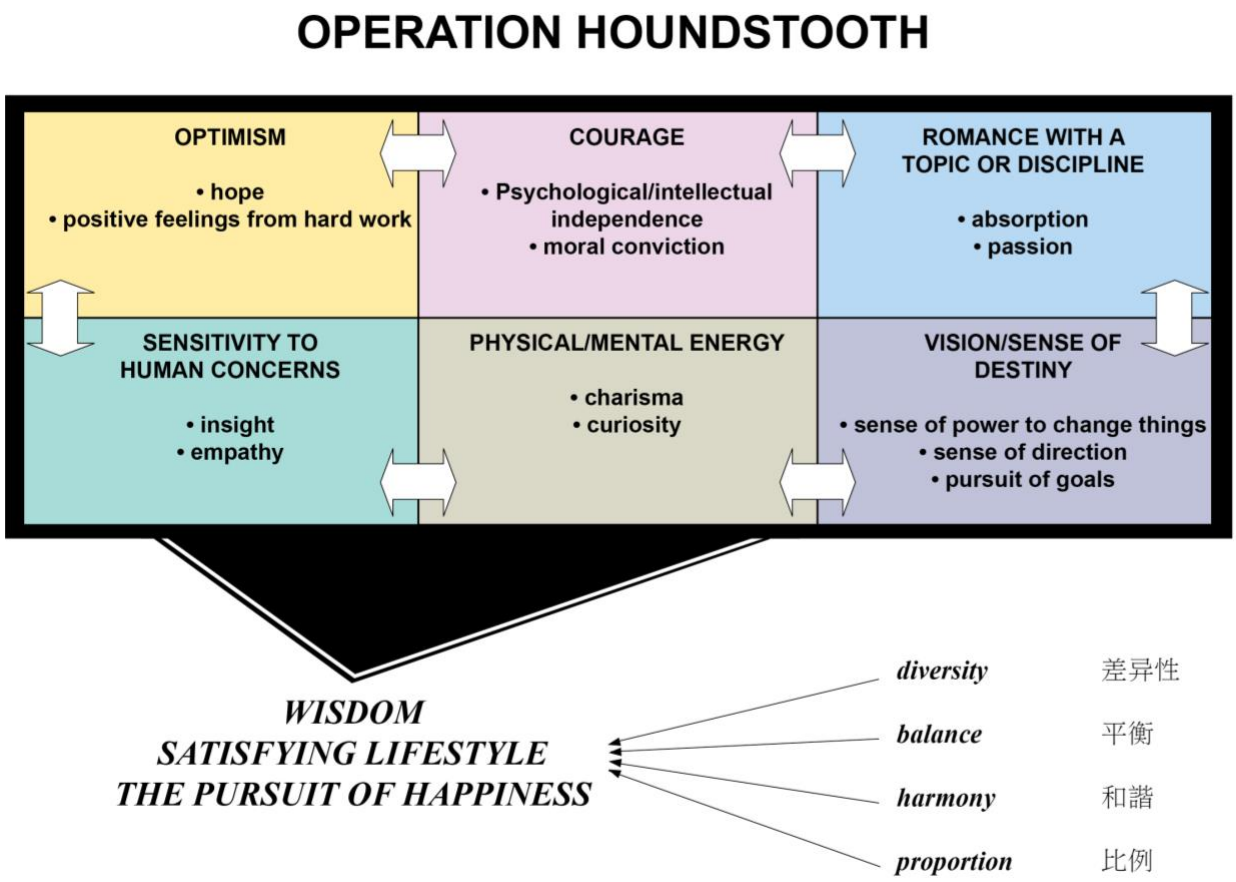


Fig. 2: Operation Houndstooth

We believe that Type III Enrichment is the most effective current way to develop these traits. A major assumption underlying our work in these co-cognitive areas is that personality and environment are subject to modification. Factors such as courage, optimism, and a sense of power to change things are the traits that we respect in leaders and innovators such as Rachel Carson, Marie Curie, Mother Teresa, Nelson Mandela, and Mahatma Gandhi (Renzulli, 2005). Our SEM approach was developed in an effort to develop and promote these traits so that young people will be prepared to assume leadership roles in adulthood and realize transformational giftedness. The most important goal of our SEM program is for high-ability students to develop into effective, prosocial creative producers or leaders.

The Schoolwide Enrichment Model (SEM)

The Enrichment Triad Model serves as the curricular basis for an organizational plan known as the Schoolwide Enrichment Model (SEM) that is used as the basis for many gifted programs, enrichment programs, magnet and charter schools, and theme schools. When SEM is used as a gifted program, 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.). Assessment of learning information derived from high achievement and IQ test scores and based on universal screening and local norms

automatically include a student in the talent pool, enabling those students who are underachieving in their academic schoolwork to be included. We also, however, recommend that a broader category of co-cognitive information called Assessments For Learning (Renzulli, 2021) be gathered on all students. Instruments used in this category are designed to reveal student interests, preferred styles of learning and expressing ones-self, and various executive function skills. This information is based on instruments that students complete themselves and it provides material that teachers can use to form problem-based learning groups called Enrichment Clusters, a service in the SEM, described later in this chapter. This formative assessment information is especially useful for personalizing the curriculum for any student whose uniqueness as a learner can best be discovered through a combination of both cognitive and co-cognitive information. Through the use of artificial intelligence, we can now more easily gather and analyze most of this information.

Services for students include both informal and formal methods used to create or identify students' interests and to encourage students to further develop and pursue these interests in various ways. Learning mode preferences include: projects, independent study, teaching games, simulations, peer teaching, computer assisted instruction, lecture, drill and recitation, and discussion. Second, curriculum compacting is provided to all eligible students for whom the regular curriculum is modified by eliminating portions of previously mastered content. This elimination or stream-lining 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, Renzulli & Burns, 2016).

The Enrichment Triad Model, the Curricular Core of the SEM

The Enrichment Triad Model (Renzulli, 1977) was designed to encourage creative productivity on the part of young people by exposing them to various topics, areas of interest, and fields of study; it was also conceived to further train students to apply advanced content, process-training skills, and methodology training to self-selected areas of interest and problems that they want to investigate and solve. Accordingly, three types of enrichment are included in the Enrichment Triad Model (see Figure 1).

As briefly mentioned earlier, Type I Enrichment is designed to expose students to a wide variety of disciplines, topics, occupations, hobbies, persons, places, and events that would not ordinarily be covered in the regular curriculum. In schools that use this enrichment approach to learning, an enrichment team of parents, teachers, and students often organizes and plans Type I experiences by contacting speakers, arranging minicourses, demonstrations, or performances, or by ordering and distributing films, slides, videotapes, or other print or non-print media. As noted above, some Type I opportunities expose students to problems in their communities, locally and globally.

Type II Enrichment includes materials and methods designed to promote the development of thinking and feeling processes. Some Type II Enrichment is general, consisting of training in areas such as creative thinking and problem solving, learning how to learn skills such as classifying and analyzing data, and advanced reference and communication skills. Type II training includes the development of various skills such as:

- creative thinking and problem solving, critical thinking, and creative productivity training;
- specific learning-how-to-learn skills;
- appropriate use of advanced-level reference materials;
- written, oral, and visual communication skills;
- evaluation and use of technology tools;
- affective skills such as leadership or character development skills.

Other Type II Enrichment is specific, as it cannot be planned in advance and usually involves advanced instruction in an interest or problem area selected by the student. For example, students who became interested in botany after a Type I Enrichment experience can pursue additional training in this area by doing advanced-level reading in botany; compiling, planning, and carrying out plant experiments. For those interested students who wanted to go further, their enrichment teacher arranged for additional training in this area.

Type III Enrichment, most often linked to the development of transformational giftedness, involves students who become interested in pursuing a self-selected area and are willing to commit the time necessary for advanced content acquisition and process training in which they assume the role of a first-hand inquirer. The goals of Type III Enrichment include:

- providing opportunities for applying interests, knowledge, creative ideas and task commitment to a self-selected problem or area of study;
- acquiring advanced level understanding of the knowledge (content) and methodology (process) that are used within particular disciplines, artistic areas of expression, and interdisciplinary studies;
- developing authentic products that are primarily directed toward bringing about a desired impact upon a specified audience (such as improving or changing something for the better) and solving problems;
- developing self-directed learning skills in the areas of planning, organization, resource utilization, time management, decision making and self-evaluation;
- developing task commitment, self-confidence, and feelings of creative accomplishment, and pride in helping others and fixing problems.

We have seen thousands of Type III projects over the last four decades that demonstrate the capacity for developing gifts and talents that seek to positively, meaningfully, and enduringly change the world at some level—to make the world a better place. For example, Jacob from Burlington, CT, created "Computers for Communities, Inc." in order to help close the digital divide. Four years ago, he observed that well-off families had computers but those with lesser means did not. He and other friends were able to rebuild and give away over 1,000 computers to families in need. He started the company when he was 9 years old. In another example, Xóchitl, an 8-year-old girl from Mexico (Chiapas), found that in her low-income rural community, the only source for hot water is burning firewood from cut logs. The process would release fumes into the environment and contribute to deforestation and the cost of firewood was prohibitive. Thus, few low-income residents were able to take hot showers. This young Mexican girl developed a solar water heater in her small, high poverty village to enable residents to take hot

baths or showers. Her device worked, but she refused to patent it so that she could give the idea away to others to enable them to make hot water inexpensively.

Students who complete Type III Enrichment products write short stories and poetry, design science studies and build telescopes, conduct research about local history and act as junior historians, and pursue their interests in the arts, mathematics, leadership, and community action. The opportunity to conduct a Type III study enables students to use their talents to pursue good work and to make a positive difference in their communities, as these independent or small group studies also create opportunities to solve local problems. For example, students have created campaigns about toy safety, created community food banks, and started small businesses to raise money for those who need assistance in their urban neighborhoods. They have also engaged in social action related to personal events in their lives. The example in Box A illustrates a student's Type III project in which an elementary student created change in his community in response to a drunk driving fatality in his family.

Many examples of these types of student-directed enrichment clusters and Type III projects have been implemented as part of SEM programs. These opportunities encourage students to participate in planned volunteer activities, assume a leadership role, and use their creativity to design and implement a solution to real, personally identified community problems. Prior research supports this approach, finding that participating in these types of activity can improve executive functions, including an increased interest in doing good in the world (Sands & Heilbronner, 2014). Type III projects also enable students to develop various executive functioning skills (Brigandi, Siegle, Weiner, Gubbins & Little, 2016; Hébert, 1993; 2010; Renzulli, 2021; Terry, 2003; Westberg & Leppien, 2017) and pursue degrees and careers in their areas of interest.

Enrichment Clusters

Enrichment clusters are another component of the SEM that provides excellent ways for transformational giftedness to develop. In clusters, non-graded groups of students who share common interests come together during specially designated time blocks to pursue these interests. Like extracurricular activities and programs such as 4-H and Junior Achievement, the main rationale for participation in one or more clusters is that *students and teachers share a common interest and want to be there*. All teachers (including music, art, physical education, etc.) are involved in teaching the clusters, as are community members and parents who volunteer—in fact, their involvement in any particular cluster should be based on the same type of interest assessment that is used for students in selecting clusters of choice. The model for learning used with enrichment clusters is based on an inductive approach to the pursuit of real-world problems rather than traditional, didactic modes of teaching, making these a perfect complement to the development of transformational giftedness, as enrichment clusters promote cooperativeness within the context of real-world problem solving, and provide superlative opportunities for solving problems and creating services that help one's community. Implementing enrichment clusters creates opportunities to make every child feel as if they have a talent or a potential talent and can make a difference in a positive way. In essence, enrichment clusters can help to create opportunities for transformational gifts to develop.

Enrichment clusters are modeled after the ways in which knowledge utilization, thinking skills, problem solving, creativity, and interpersonal relations take place in the real world. Thus, all work is directed toward the production of a product or service, many of them focused on making a positive difference in students' communities. Many clusters focus on service projects that students pursue to make their school and community a better place to live, as demonstrated by recent titles of SEM enrichment dusters, such as: The Save the Dolphin Society, Young Social Entrepreneurs, Preventing Hunger in our Community, and Gardening for Food Production.

Discussion and Summary

Longitudinal research on the use of the Triad Model has shown that students who completed Type III projects, both in and out of school, maintain interests and career aspirations in college and in graduate school (Delcourt, 1993; Reis & Peters, 2020; Renzulli & De Wet, 2010; Westberg, 2010). Research on the use of the Triad Model in college has also been conducted, with positive findings related to student creative productivity and engagement (Brandon, Reis & McGuire, 2021). What is the longitudinal impact of this brand of Type III project? Students who engage in Type III Enrichment have a positive relationship between their early interests and subsequent interests (Westberg, 2010), postsecondary school plans (Hébert, 1993), career choices (Delcourt, 1993), goal valuation (Brigandi et al., 2016), environmental perceptions (Brigandi, Weiner, Siegle, Gubbins & Little, 2018), and self-regulation (Brigandi et al., 2018; Hébert, 1993; 2010). Baum and colleagues (1995) reported that Type III Enrichment was an effective approach to reverse underachievement. Brigandi et al. (2016) also found a positive connection between participation in enrichment and goal valuation. Students who engaged in Type III Enrichment perceived their projects to be interesting and beneficial and believed they would contribute to their continued interest and perceptions of enjoyment in the future.

Enrichment programs based on the SEM provide specific benefits to academically talented and high potential students, enabling students to increase aspirations for college and careers and to select interest-based and challenging postsecondary and career plans (Delcourt, 1993; Hébert, 1993); it also helped them develop creativity and motivation that was applied to later work (Delcourt, 1993; Hébert, 1993, 2010). Hébert (2010) and Delcourt (1993) found that gifted programs using the SEM approach (Renzulli, 1977; Renzulli & Reis, 1985; 1997; 2014) helped focus students' academic development and productivity in their areas of interest, had a positive effect on students' subsequent interests, and positively affected postsecondary career plans. Enrichment experiences in SEM programs contributed to students' social and emotional growth, especially their belief in self, empathy for others, and connections with intellectual and affective soulmates. Westberg (2010) investigated longitudinal effects on students who participated in the same type of program and found that students maintained interests and were still involved with both their interests and creative productive work after they finished college and graduate school. In summary, both qualitative and quantitative longitudinal studies of SEM gifted programs demonstrate positive outcomes in cognitive, affective, and social development of participating students (Reis & Peters, 2020).

The SEM includes many research-based recommendations for developing gifted behaviors and talents in young people that focus on using one's talents to make the world a better place. In addition, the SEM identification system is and has always been more flexible than most

traditional identification systems. We have consistently advocated for providing general enrichment (Type I and II Enrichment), as well as enrichment clusters for all students. Focused, planned efforts on talent development have emerged from our consistent attempts to change the culture of schools by creating a planned, systematic set of opportunities, resources, and encouragement for talent development. Many SEM schools have stated goals related to talent development and offer a special haven for creative and talented students who want to make a difference in their schools and communities, learn in an active and engaging way, pursue their interests, and complete work that is personally meaningful.

We believe that the recent, important focus on social and emotional learning and affective development is compatible with our work on developing students who want to improve the world, as discussed in this chapter. Blending co-cognitive learning activities into the SEM and blending them with cognitive and traditional achievement goals enables students to understand and develop positive emotions, set and achieve important—even noble—goals, feel and show empathy for others, solve problems, promote positive relationships, and make good and ethical decisions. We also believe that all children deserve the chance to make a difference in their community, the opportunity to solve problems for the common good, and the time to develop and use their talents to make our world a better place to live.

We hope that more schools and districts will continue to implement talent development programs or use our SEM talent development pedagogy in the future, whether as part of gifted or enrichment programs, magnet or theme schools, or as a part of a general education program. We believe that students' enjoyable, creative productive experiences can and will increase the likelihood that they will seek future creative opportunities to make a positive difference in their subsequent careers and personal lives. And when they do, the world will benefit from their creative and personally meaningful contributions to make their worlds a better place. Indeed, that is the intended legacy of our decades of work in the SEM. Enrichment experiences can provide the training that will encourage them to continue their creative work in the future; and emerge as leaders who possess sensitivity to human concerns and the courage and creativity that will help to make a positive difference in their areas of interest and passion.

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