CHAPTER 12

THE THREE-RING CONCEPTION OF GIFTEDNESS: A DEVELOPMENTAL APPROACH FOR PROMOTING CREATIVE PRODUCTIVITY IN YOUNG PEOPLE

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The term *gifted* means that an individual is exceptional at something and we prefer to use the term as an adjective (e.g., he or she is a *gifted* pianist, etc.) rather than as a noun (e.g., *the gifted*). We also talk about gifted behaviors rather than use giftedness to represent a state of being. The study of gifts and talents and the ways in which individuals' abilities interact with and are affected by environment, personality, educational opportunities, family support, and life experiences have fascinated researchers for several decades. As we consider our scholarly and school-based experiences in developing programs and identification systems for high potential students, as well as our knowledge base about how giftedness can be developed in children and adolescents, several common themes emerge about talent development and giftedness.

IMPORTANCE OF THE TOPIC

We begin this chapter with a discussion of the most important themes underlying the three-ring conception of giftedness, which was developed to nurture gifted students who excel in academic and/or creative–productive pursuits.

Giftedness Is Developmental

Over 3 decades ago, Renzulli (1978, 1986) summarized research suggesting that giftedness existed or could be developed in certain people, at certain times, and under certain circumstances. The three-ring conception of giftedness argues stringently against considering giftedness as a trait (e.g., eye color) or something that children do or do not possess at any given point in their development. Renzulli believes giftedness could not and should not define or identify gifted individuals, especially children at a young age, as if there is a golden chromosome that enables them to be identified when the right set of assessment tools are used.

Giftedness Is Multidimensional

Few, if any, researchers or theorists who have studied intelligence or intellectual giftedness believe that giftedness is unidimensional. Major theorists who study giftedness generally acknowledge that it is multidimensional, as Gardner (1983, 1999), Renzulli (1986, 2005), and Sternberg (1996) agreed that we must look beyond the traditional early notions that intellectual giftedness can be equated with one high score on an assessment (e.g., IQ test). A variety of conceptions of intellectual giftedness have been posited by many researchers ranging from general, broad, and overarching characterizations to more specific definitions of giftedness identified by specific actions, products, or abilities within certain domains (Sternberg & Davidson, 2005). This research, conducted over the last few decades, supports a broader conception of giftedness, including combinations of multiple qualities, in addition to intellectual potential. This multidimensional conception also includes nonintellectual traits such as task commitment and creativity.

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Diverse Patterns of Giftedness Occur

Underlying the definition of giftedness synthesized in this chapter is the notion that those labeled as high potential or intellectually gifted are a diverse and heterogeneous group with differing cognitive profiles, learning disabilities, attention deficits, personalities, learning styles or preferences, and interests. They may or may not achieve at high levels in school, demonstrate asynchronous development, have cognitive and/or academic strengths and weaknesses, and have learning disabilities (Reis, Neu, & McGuire, 1997). Some experience severe or periodic underachievement in school (Reis & McCoach, 2000), supporting the notion that differing patterns of giftedness exist and change over time.

Academic and Creative–Productive Giftedness

The three-ring conception of giftedness (Renzulli, 1978, 1986, 2005) includes three clusters of traits contributing to creative–productive giftedness on the basis of research and work that has emerged over the last few decades. The differences have been defined between high intellectual ability or potential, sometimes referred to as high achieving or schoolhouse giftedness, and high creative ability or potential, sometimes referred to as creative–productive giftedness (Kim, Kaufman, Baer, & Sriraman, 2013; Simonton, 2000; Tannenbaum, 1997). Both types are important, but the three-ring conception focuses on creative–productive giftedness. Schoolhouse or high-level academic giftedness enables individuals to excel in educational pursuits, earn high grades, and achieve high levels of academic success in school settings. Those who fall into this category generally score well on more traditional achievement or cognitive assessments, and perform well in school; they become doctors, lawyers, engineers, educators and fill important professional roles and niches in our society.

Creative–productive giftedness, on the other hand, is manifested by individuals who tend to be producers (rather than consumers) of knowledge. In other words, creative–productive giftedness describes the work of those whom society recognizes as highly creative through their contributions and advancements to knowledge, art, and culture. Our fascination revolves around what enables some individuals to use their intellectual, motivational, and creative assets and talents to produce outstanding manifestations of achievement and creative productivity, whereas others with similar or perhaps even greater potential fail to do so. In other words, what causes gifts to develop in individuals such as Thomas Edison, Rachel Carson, Langston Hughes, or Isadora Duncan, whereas other persons with equal potentials and educational advantages fail to create and produce creative and important work?

Culture, Gender, and Environment Influence Giftedness

Conceptions of giftedness imply different meanings for different people, and discussions about the meanings of these conceptions are definitively influenced by the culture, environment, and the context in which gifts emerge and are developed, as well as the values associated with individual types and expressions of gifts and talents. Not surprisingly, within different cultures, contexts, and environments, the outcomes of intellectual giftedness vary. Cultural influences negatively or positively affect the choices and products associated with one's potentials. Gender also has an impact on giftedness; the professional, scholarly, and creative accomplishments of gifted men in many cultures far surpass those of similarly talented women (Reis, 1998).

Consistency With Identification and Programming

To best support effective implementation of gifted programming, internal consistency and congruence must exist among the conception of giftedness adopted by a school or agency, the criteria and procedures used to identify students, and the goals and types of activities offered in the gifted program. Links must exist between a broad range of services and teaching practices that are specifically designed to develop a variety of talents in young people. Another critical consideration regarding defining and identifying students is the belief that the services should be labelled rather than the students, enabling educators, psychologists, and parents to document specific strengths and to use

this information to make decisions about the types of activities and the levels of challenge that should be made available.

To understand the importance of internal consistency, the identification and programming system designed to accompany the three-ring conception is briefly summarized in this chapter. To recognize potential in students with undiscovered gifts and talents and provide opportunities to develop these talents is a goal of the schoolwide enrichment model (SEM; Renzulli & Reis, 1985, 1997, 2014). The continuum of school-based special services suggested by SEM enables and supports the identification of students who can benefit from services that recognize academic and creative–productive giftedness. In other words, services should be labelled, not students, in this approach to develop creative–productive giftedness.

THE THREE-RING CONCEPTION OF GIFTEDNESS

The three-ring conception of giftedness (Renzulli, 1978, 1986, 2005; see Figure 12.1) was designed as a definition of giftedness that accompanies the SEM, which was developed to nurture academic/high-achieving and creative–productive types of giftedness (Renzulli & Reis, 1994, 1997, 2014). Both types of giftedness are important; they often interact, and both should be developed in high potential youth who participate in special gifted and talented programs.

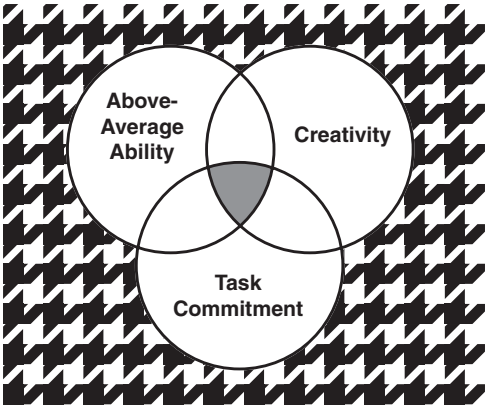

FIGURE 12.1. The three-ring conception of giftedness.

The SEM programming and identification model is supported by decades of research (Reis & Renzulli, 2003; Renzulli & Reis, 1997), as are the clusters of ability that describe highly intelligent, creative–productive individuals. This research has consistently demonstrated that although no single criterion can be used to determine giftedness, persons who have achieved recognition because of their unique accomplishments and creative contributions possess a relatively well defined set of three interlocking clusters of traits (Reis, 2005; Renzulli, 1978, 1986, 1988, 1999, 2002, 2005). These clusters include above-average (but not necessarily superior) ability, task commitment, and creativity. No single cluster "makes giftedness," but rather, it is the interaction, represented by the shaded portion in Figure 12.1, that has shown to be the necessary ingredient for a creative–productive accomplishment (Renzulli, 1978, 1986, 2006). It is essential to understand that each cluster plays an important role in contributing to the display of gifted behaviors. Identification procedures in schools often overemphasize above-average cognitive abilities at the expense of the other two clusters of traits. Comprehensive reviews of the research underlying these clusters have, over time, provided updated pertinent research supporting this definition (Renzulli, 1978, 1986, 1988, 1999, 2002, 2005). Each cluster is described in more detail in the following sections.

Above-Average Ability

Above-average ability includes general and specific ability. *General ability* is the capacity to process information, integrate experiences that result in appropriate and adaptive responses in new situations, and engage in abstract thinking in areas such as verbal and numerical reasoning, spatial relations, memory, and word fluency. General abilities are most often measured by tests of general aptitude or intelligence and are broadly applicable to a variety of traditional learning situations. General ability can be applied across all domains (e.g., general intelligence) or broad domains (e.g., general verbal ability applied to several dimensions of the language arts).

Specific ability is the capacity to acquire knowledge and skill or the ability to perform in one or more activities of a specialized kind and within

a restricted range. Examples of specific abilities include areas such as biology, ballet, math, musical composition, sculpture, and photography. Each specific ability can be further subdivided into more specific areas (e.g., portrait photography, astrophotography, photo journalism, etc.). Certain specific abilities, in certain areas (e.g., math, chemistry), have a strong relationship with general ability and, therefore, some indication of potential in these areas can be determined from tests of general aptitude and intelligence. Some specific abilities can be measured by achievement tests and tests of specific aptitude, but other specific abilities are not easily measured by standardized tests (e.g., leadership abilities, fine arts abilities, "street smarts," planning and decision making abilities). Assessment of some specific abilities can occur only by highly skilled observers using specific types of performance assessment methods.

Above-average ability is an upper range of potential within any given area, and although it is difficult to assign numerical values to specific areas of ability, we define individuals with above-average ability as those who are capable of high-level performance or the potential for performance. This potential is usually representative of the top 5% of any given area of human endeavor (e.g., graduates from competive four-year colleges, universities, or conservatories). Renzulli (1978, 1986, 1988, 1992, 1999, 2005) supported the concept of the above-average ability cluster, as did Sternberg (1988, 1996). Sternberg's (1988) triarchic theory of intelligence includes *analytical intelligence*, which is defined as evaluation, comparison, and contrast of information—the type of intelligence typically considered in traditional academic settings, and *practical intelligence*, which is defined as the application of one's abilities to the types of problems one encounters in daily life by adapting to, shaping, and selecting the environment. Sternberg (2000) asserted that practical intelligence is a better predictor of successful academic and occupational outcome in life than standard IQ tests and other cognitive tests.

Task Commitment

The second cluster of traits in the three-ring conception of giftedness is a refined or focused form of motivation, which Renzulli (1978) termed *task commitment* and which has recently gained attention in Duckworth, Peterson, Matthews, and Kelly's (2007) theory of grit. Whereas motivation is usually defined in terms of a general energizing process that triggers responses, task commitment represents focused motivation that is brought to bear on a particular problem (task) or specific performance area. The terms that are most frequently used to describe task commitment are perseverance, endurance, hard work, dedicated practice, self-confidence, and a belief in one's ability to carry out important work. In addition to perceptiveness and a better capacity to identify significant problems, research on persons of high levels of accomplishment has consistently shown that a special fascination for and involvement with content that is of high interest is of critical importance in the talent development process (Renzulli, 1978, 1986, 2005). The children in Bloom and Sosniak's (1981) study of sustained talent development, for example, displayed early evidence of task commitment. Participants spent as much time each week developing their talent as their average peer spent watching television.

Research support for task commitment has increased in recent years. From popular maxims and autobiographical accounts to research about the role of effort and sustained interest (Duckworth et al., 2007; Dweck, 2006; Tough, 2013), task commitment, as well as focus and effort, have emerged as necessary traits used by successful individuals who can immerse themselves in a specific problem or area for an extended period of time. Indeed, *grit* is defined as the tendency to sustain interest in and effort toward very long-term goals (Duckworth et al., 2007).

Renzulli's earlier research (1978, 1986, 2005) on persons with high levels of creative productive behavior consistently reinforces their high levels of task commitment. Nonintellectual factors, especially those related to task commitment, have been found to play an important role in the cluster of traits that characterize highly productive people. Although this second cluster of traits is not as easily and objectively identifiable as general cognitive abilities, these traits are a major contributor to the development of gifted behaviors.

Creativity

The third cluster of traits in the three-ring conception of giftedness includes factors usually characterized under the general heading of creativity. Kaufman and Beghetto (2009) suggested that there have been more than 10,000 papers written about creativity in the last decade and across diverse areas of psychology, so summarizing research on this increasingly complex area is challenging. Several researchers, including Kaufman and Beghetto (2009), suggested that current creativity research follows one of two trends: focusing on eminence and creative genius, usually labeled as *Big-C creativity*, or describing a second line of research on everyday creativity (Richards, 1990), which includes the creative work or activities of children, and is often called *little-c creativity*. Our work on the three-ring conception of giftedness has led us to understand that the little-c opportunities that are a core part of SEM can inspire students to pursue the Big-C creativity that may emerge in later years. Longitudinal research suggests that this is the case. Hébert (1993) found that the creative projects of school-age students had an impact on their postsecondary decisions and plans. He also found that the high creative opportunities in elementary school and middle school SEM programs encouraged students to seek creative outlets in high school. Students who experienced high levels of creative productivity, especially those who completed sustained creative projects based on their interests, maintained these interests and aspirations during college. One student we recently interviewed, for example, who had graduated from college as an aspiring writer, explained that the high levels of creative enjoyment and engagement that she experienced in the enrichment program led her to seek similar opportunities in college and in her future work. Delcourt (1993), in another longitudinal study of participants in SEM programs, learned that students' creative productivity, as manifested in performances and product development, was predicted by earlier high levels of creative–productive behaviors in elementary school and middle school. In another recent longitudinal study, students participating in SEM programs maintained strong interests over time, and were still involved in creative–productive work during and after graduation from college (Westberg, 2010).

Traits associated with creativity in the three-ring conception of giftedness include novelty, curiosity, originality, ingenuity, flow (Beghetto & Kaufman, 2007; Csikszentmihalyi, 1996), and a willingness to challenge convention and tradition. SEM provides opportunities for students to experience various types of creativity, in three types of enrichment experiences. The belief that creativity is developmental is inherent in the three-ring conception of giftedness, and is shared by other creativity researchers (e.g., Cohen, 1989; Runco, 2004; Sternberg & Lubart, 1995). Another compatible approach to the creativity cluster is Amabile's (1983, 1996) componential model of creativity, in which she argued that three variables were needed for creativity to occur: domain-relevant skills, creativity-relevant skills, and task motivation. Each of Amabile's three components is necessary for creativity in and of itself, similar to the findings relating to the interaction of the three clusters in the three-ring conception.

Creativity is an essential component of the highest levels of creative–productive giftedness. Gifted scientists have emerged throughout history, but the scientists whose work we revere, whose names have remained recognizable in scholarly communities and among the general public, are those scientists who used their creativity to envision, analyze, and ultimately help resolve scientific questions in new and original ways. We believe that creativity can be encouraged and developed by students' experiences with teachers, parents, and mentors who help nourish creativity in the face of boredom that high potential students often experience in school (Reis & McCoach, 2000). Because the occurrence of Big-C creativity is rare, we remain fascinated by whether we can increase the likelihood that it can occur more often in students who participate in consistently planned enrichment opportunities.

It is difficult to measure creativity as challenges exist in establishing relationships between creativity assessments, tests, and later creative lifetime accomplishments. Some reseach exists about school-based experiences that have increased creativity and had an impact on later creative productivity (Delcourt,

1993; Hébert, 1993; Westberg, 2010). Although case studies do not represent the type of hard data that is the contemporary vogue in research and evaluation, when examining a different "brand" of learning, we must be open to equally different brands or evaluation. Accordingly, we advocate increasing longitudinal case study research in the assessment of students' potential for future creativity with an analysis of the types of project-based work completed in school, and the effects of this work on future creative productivity.

Defining Gifted Behaviors

Although no single statement can effectively integrate the many ramifications of the research studies that underlie the three-ring conception of giftedness, the following definition of gifted behavior attempts to summarize the major conclusions and generalizations from extensive reviews of research (Renzulli, 1978, 1986, 2005).

> *Gifted behavior* consists of behaviors that reflect an interaction among three basic clusters of human traits—above-average ability, high levels of task commitment, and high levels of creativity. Individuals capable of developing gifted behavior are those possessing, or capable of developing, this composite set of traits and applying them to any potentially valuable area of human performance. Persons who manifest, or are capable of developing, an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs.

The three-ring representation of this definition (see Figure 12.1) portrays a summary of the major concepts and conclusions emanating from decades of work. As is always the case with traits suggesting gifted behavior, an overlap exists among the general categories and specific traits. It is also important to point out that all of the traits need not be present in any given individual or situation to produce a display of gifted behaviors. It is for this reason the three-ring conception of giftedness emphasizes the interaction among the clusters rather than any single cluster. It is also for this reason that we believe gifted behaviors take place in certain people (but not all people), at certain times (but not all the time), under certain circumstances (but not all circumstances), and within certain contexts or areas of study.

THE SCHOOLWIDE ENRICHMENT MODEL: DEVELOPING THE THREE CLUSTERS

SEM is a product of over 3 decades of research and field-testing (Renzulli & Reis, 1985, 1997). SEM has been implemented in thousands of schools across the world, and extensive evaluations and research studies indicate the effectiveness of the model which VanTassel-Baska and Brown (2007) called one of the megamodels in the field of gifted education. Previous research suggests that the model is effective at serving high-potential students in a variety of educational settings, and works well in schools that serve diverse ethnic and socioeconomic populations (Renzulli & Reis, 1997, 2003). SEM provides enriched learning experiences and higher learning standards for all children through three goals: to develop talents in all students, to provide a broad range of advanced-level enrichment experiences for all students, and to follow up advanced learning for students on the basis of their interests and motivation. SEM also emphasizes engagement and the use of enjoyable and challenging learning experiences that are constructed around students' interests, learning styles, and product styles.

In SEM, a talent pool (15%–20% of above-average ability/high-potential students) is identified through a variety of measures, including achievement tests, teacher nominations, and assessment of potential for creativity and task commitment, as well as alternative pathways of entrance (e.g., self-nomination, parent nomination, etc.). Students receive several kinds of services in a SEM school or a school using SEM as its enrichment or gifted program model. Students create a profile identifying their unique strengths and talents. Teachers also identify patterns of students' interests, products, and learning styles. These methods are used to identify and create students' interests and to encourage

students to develop and pursue these interests in various ways.

Curriculum compacting is also offered and provided to all eligible students. Compacting enables teachers to use a systematic approach to modify the regular curriculum by eliminating portions of previously mastered content when students show strengths in these areas (Reis, Burns, & Renzulli, 1992). Curriculum compacting is used by teachers to document the content areas students have mastered and substitute alternative work, often on the basis of students' areas of interest. This elimination or streamlining of curriculum enables students to avoid repetition of previously mastered work and guarantees mastery while simultaneously finding time for more appropriately challenging activities (Reis, Westberg, Kulikowich, & Purcell, 1998).

The Enrichment Triad Model

The enrichment triad model (Renzulli, 1977) is the focus of educational programming in an SEM program and includes three distinct but interrelated types of enrichment. Type I enrichment includes general exploratory experiences to expose students to exciting new topics, issues, and areas of knowledge not ordinarily covered in the regular curriculum; it is delivered by guest speakers, on field trips, with demonstrations, at interest centers, and with the use of audiovisual materials and technology (e.g., webinars, internet sites). 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 in classrooms and enrichment programs, includes the development of creative thinking and problem solving, critical thinking, and affective processes; a variety of specific learning-how-to-learn skills; skills in the appropriate use of advanced-level reference materials; written, oral, and visual communication skills; and metacognitive skills in the use of technology. Type III enrichment is the most advanced level of enrichment in the triad model. Although Type I enrichment, Type II enrichment, and curriculum compacting should be provided on a regular basis to talent pool students, the ability to pursue a Type III enrichment project depends on a student's interests, motivation, and desire to complete an advanced-level study. Type III enrichment is defined as investigative activities and artistic productions in which a student assumes the role of a first-hand inquirer thinking, feeling, and doing like a practicing professional, even though this is done at a more junior level. A student involved in Type III enrichment pursues advanced or professional level work in an area of strong interest or passion as deeply as possible given the student's level of development and age. Students who engage in Type III enrichment write books, complete sophisticated scientific studies, develop political campaigns, and create new products and inventions, among many other highly creative activities. Type III products take months and even years to complete, are highly engaging, and are always in the areas of student interest.

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). Type III experiences involve students in high engagement activities that promote genuine enthusiasm for learning and increased achievement (Reis & Renzulli, 2003; Renzulli & Reis, 1997). Although student engagement has been defined in many ways, we view it as the enthusiasm that students display when working on something that is of personal interest and that is pursued in an inductive and investigative mindset approach to learning. Engagement considers student learning styles and preferred modes of expression, as well as interests and levels of knowledge in an area of study. Through these highly engaging approaches, students are motivated to improve basic skills and bring their work to higher levels of quality and creativity. True engagement results from challenging students to "stretch" above their current comfort level to activities that are based on resources and methods of inquiry that are qualitatively different from excessive practice. Engagement occurs because these students have some choice in the area in which they will participate; they interact in a real-world goal-oriented environment with other like-minded students interested in developing expertise in their chosen area;

they use authentic problem solving, interpersonal, and creative strategies; they produce a product, service, or performance that is evidence of the level and quality of their work; and their work is brought to bear on one or more intended audiences other than, or at least in addition to the teacher (Renzulli & Reis, 1985, 1997, 2014). The engagement that results from these kinds of enrichment experiences, particularly Type III enrichment, exemplifies the best way to approach learning to promote creativity and task commitment in the future. Research on the three-ring conception of giftedness and SEM has demonstrated that teaching students to think critically and creatively improves school-based achievement (Reis, Eckert, McCoach, Jacobs, & Coyne, 2008; Reis et al., 2007; Renzulli, 2008; Renzulli & Reis, 1997, 2003).

Identifying Students Using the Three-Ring Conception of Giftedness

How many students are identified in SEM schools or districts using the three-ring conception of giftedness is based on the number of above-average students that can be identified in the district, the nature and extent of services provided in the regular curriculum, and the expanded range of services that can be made available to targeted students in a continuum of services that is a part of SEM (e.g., curriculum compacting, enrichment clusters, mentorship programs for advanced students). Services such as curriculum compacting and investigative learning opportunities (e.g., enrichment clusters in robotics or arts, history day competitions, math leagues, programs with music, art, and drama) focus on a specific talent area and fall within the scope of a continuum of service. These types of opportunities reflect a total school talent development perspective, and are especially valuable for a student or small group that has a high degree of potential but specific areas of interest.

A team of school personnel including teachers of gifted students, classroom teachers, administrators, and personnel specialists (e.g., counselor, school psychologist, social worker) are responsible for talent pool identification using a multiple criteria approach, not by setting arbitrary cut-off points or adding up points from various instruments. Informed human judgment is crucial for the SEM identification system to develop diverse talent potentials in diverse segments of the school population, and to match students with services that place a premium on developing creative productivity rather than merely advanced lesson learning.

Academic performance, on the basis of current end-of-year grades and recent scores from district-wide achievement tests, is the first criterion used in forming the talent pool. Local norms also help to identify the most promising students in each school and at each grade level who are the best candidates for SEM services. Students who score below the achievement score cut-off but who have demonstrated outstanding academic performance should be considered eligible for SEM program services, as should high-scoring students with lower grades because of underachievement or personal or social difficulties. In addition to using test scores to identify the SEM talent pool, teacher nominations give students a chance when their high potential cannot be measured with standardized tests. Teachers can nominate students who display characteristics that are not easily determined by tests (e.g., high levels of creativity or task commitment; unusual interests, talents, or special areas of superior performance or potential). The instrument recommended for teacher ratings is the *Scales for Rating the Behavioral Characteristics of Superior Students* (SRBCSS; Renzulli et al., 2002). These scales are the most thoroughly researched and widely used teacher-rating instrument in the world (Renzulli, Siegle, Reis, Gavin, & Reed, 2009). In most SEM programs, the selection committee decides to use the three main scales corresponding to the three-ring conception of giftedness (i.e., learning, motivation, and creativity); however, additional scales are available for programs seeking ratings for special areas of talent or for nominating students who might be the best candidates for enrichment programs in areas such as problem solving or critical thinking. In such cases, one or a combination of the following SRBCSS scales might be used: leadership, reading, math, science, technology, music, art, drama, communication-precision, communication-expressive, and planning. Once again, local norms based on school and grade level ratings are used rather than state, regional, or

national norms, and each scale is considered a categorical data point, meaning that the scores from the scales should never be added together or averaged.

In many schools using the SEM identification system, most of the talent pool will come from these two criteria. Alternate pathways are also used but are locally determined by individual schools, and pursued in varying degrees by individual school districts. Alternate pathways generally include parent nominations, peer nominations, self-nominations, specialized tests (e.g., creative writing, spatial or mechanical ability), product evaluations, or virtually any other procedure that might lead to consideration by a selection team (e.g., completion of outstanding products in a science fair or invention competition).

PRACTICE AND POLICY ISSUES

Since the original publication of the three-ring conception of giftedness (Renzulli, 1978), questions have been raised about the overall conception and the interrelationships between and among the three rings. In this section, we discuss the most frequently asked questions to clarify concerns raised by persons who have expressed interests (positive and negative) in this particular conception of giftedness.

Do Additional Clusters Exist Beyond the Original Three?

A frequent reaction to the three-ring conception of giftedness has been the suggestion that the three clusters of traits portrayed in the model do not adequately explain the development of gifted behaviors. An extensive examination of the research on human abilities has led to an interesting conclusion about this question, resulting in a modification of the original model. This modification is represented graphically by the houndstooth background on which the three rings are embedded (see Figure 12.1). On the basis of our experiences and research about the three-ring conception of giftedness (Renzulli, 1978, 1986, 2005), we believe that the interaction among the three rings is still the most important feature leading to the manifestation of gifted behaviors. Other factors contribute to the reasons that some persons display gifted behaviors at certain times and under certain circumstances. These factors have been grouped into the two traditional dimensions of personality and environment that influence the manifestation of gifted behaviors. A houndstooth pattern was selected to convey the interactions between personality traits and environmental factors on which the three-rings are embedded. When we consider the almost limitless number of combinations between and among the factors listed, it is easy to realize why so much debate occurs about how to define giftedness.

An analysis of the role that personality and environment play in the development of gifted behaviors is beyond the scope of this chapter, but it is important to note that school personnel who are charged with the responsibility of identifying and developing gifted behaviors cannot influence personality or home environment. Personality factors are, in most cases, genetically determined. Although educators play an important role in developing personal preferences or shaping or modifying some behaviors, they can not influence overall personality formation. Second, other factors (e.g., socioeconomic status, parental personalities, family position) are chance factors that cannot be easily changed by educators. It is for these reasons that our efforts to develop talents and potentials, using SEM applied to the three-ring conception, have focused on the three sets of clusters identified in the original model.

Certain aspects of the original three clusters also relate to chance factors, for it may be chance that enables students to interact with teachers that peak and support the students' creativity. Our research, however, has demonstrated that creativity and task commitment are in fact modifiable and can be influenced in a highly positive fashion by purposeful kinds of educational experiences (Baum, Renzulli, & Hébert, 1995). Our research has shown that general and specific abilities can be positively enhanced to varying degrees by purposely planned enrichment and acceleration experiences (Colangelo, Assouline, & Gross, 2004; Gavin, Casa, Adelson, Carroll, & Sheffield, 2009; Gavin et al., 2007; Reis et al., 2007, 2008).

Are the Three Rings Constant?

Most educators and psychologists would agree that the above-average ability ring represents a generally

stable set of characteristics. For example, if an individual demonstrates high ability in math, mathematical ability has likely been present in the months and years preceding the day in which the math abilities were tested. In most students, content abilities tend to remain relatively stable. In view of the types of assessment procedures that are most readily available and economically viable, it is easy to see why aptitute or achievement tests have been used so often to make decisions about entrance into gifted programs. Educators usually have more confidence with abilities that can be reliably and objectively measured.

In our identification model, above-average ability is the major criterion for identifying a group of high potential students in the talent pool, generally representing the top 10% to 15% of the general school population. Test scores, teacher ratings, and other forms of status information (i.e., information that can be gathered and analyzed at fixed points in time) enable educators to make certain kinds of decisions about accessibility to the continuum services that is provided by SEM programs. For example, in SEM, high scoring students in the talent pool are guaranteed services such as curriculum compacting.

The task commitment and creativity clusters are different, as these traits are not always present or absent in the same manner as students who are generally more stable in content area achievement. We can't use a percentile to value a creative idea, nor can we assign a standardized score to the amount of effort and energy that a student might be willing to devote to a highly demanding task. Creativity and task commitment are present or absent as a function of the various types of situations in which individuals become involved.

The creativity and task commitment clusters are variable rather than permanent. There may be a tendency for some individuals to develop more creative ideas than others and have greater reservoirs of energy that promote more frequent and intensive involvement in situations requiring high levels of creativity. These traits are not consistently present nor absent in the same way that an individual's high ability in math may be consistently demonstrated. The work of highly creative individuals is characterized by peaks and valleys in their creativity and task commitment. One simply cannot operate at maximum levels of output in creativity and task commitment on a constant and consistent basis. Even Thomas Edison, who is acknowledged to be the world's record holder of original patents, was not creative during every period of his life. The most productive people have "fallow" periods, and some even experience "burn out" following long and sustained encounters with the manifestation of their talents. T. S. Eliot, for example, reportedly had difficulty maintaining long periods of highly creative activity, and as Murphy (2007) reported, his productivity lagged following the publication of *The Wasteland*: "These fallow periods resulted in somewhat fruitless experimentations that inevitably would culminate in a new and unexpected direction for his poetry" (p. 379).

Task commitment and creativity can be developed through appropriate stimulation and training. Variations in interests do occur, as some people are more influenced by certain situations than others, but educators cannot predetermine which individuals will respond most favorably to a particular type of stimulation. Some levels of giftedness emerge in response to a certain type of enriched stimulation of interest. General interest assessment techniques and a wide variety of enrichment experiences increase the probability of generating a greater number of creative ideas and manifestations of task commitment in students in the talent pool. In the SEM identification model, the ways in which students react to planned and unplanned stimulation experiences are charted using action information. This information constitutes a second level of identification and can be used to make decisions about which students might evolve more individualized and advanced kinds of learning activities. The important distinction between status and action information is that the latter type cannot be gathered before students have been exposed to potentially stimulating experiences. Giftedness, or at least the situations in which gifted behaviors might be displayed and developed, is in the responses of individuals rather than in the enrichment events that may stimulate those responses. This second level identification procedure is part of the general enrichment experiences

provided for students in the talent pool, and by providing a variety of Type I and Type II experiences to all students, action information worthy of follow-up is produced even on the parts of students who were not identified for the talent pool.

Finally, the creativity and task commitment clusters almost always stimulate one another. When a person gets a creative idea, the idea is encouraged and reinforced by the person's actions or the actions of others. If an individual decides to "do something" with the idea, his or her commitment to the task begins to emerge. Similarly, a large commitment to solving a particular problem will frequently begin the process of creativity as applied to problem solving. Students participating in a SEM program should be made aware of opportunities involving creative ideas and commitments in areas of particular interest. Similarly, persons responsible for coordinating SEM programs should be knowledgeable about strategies for reinforcing, nurturing, and providing appropriate resources to students at those times when creativity and/or task commitment are displayed.

Are the Rings of Equal Size?

Originally, in the three-ring conception of giftedness, clusters must be viewed as "equal partners" in contributing to the display of gifted behaviors (Renzulli, 1978). However, it is now known that the higher the cognitive ability, the better able a gifted individual can achieve in traditional learning situations. As indicated previously, the abilities that enable individuals to perform well on aptitude and achievement tests are the same kinds of thinking processes required in most traditional learning situations. The above-average ability cluster is a predominant influence in lesson-learning giftedness.

When it comes to creative–productive giftedness, however, an interaction among all three clusters is necessary for high-level performance. Not all clusters must be of equal size, nor must the size of the clusters remain constant throughout the pursuit of creative–productive endeavors. For example, task commitment may be minimal or even absent at the beginning of a robust creative idea; the energy and enthusiasm for pursuing the idea may never be as large as the idea itself. Similarly, there are cases in which an extremely creative idea and strong task commitment will overcome somewhat lesser amounts of traditionally measured ability. Such a combination may even enable individuals to increase their ability by gaining the proficiency needed to complete a robust project or study. Because we cannot assign numerical values to creativity and task commitment, empirical verification of this interpretation of the three rings is impossible. Our research and case studies clearly indicate that larger clusters do in fact compensate for somewhat decreased size on one or both of these areas, but all three rings must be present and interacting for high levels of creative productivity to emerge.

FUTURE CONSIDERATIONS AND DIRECTIONS: INVESTIGATING THE HOUNDSTOOTH OF PERSONALITY AND ENVIRONMENT

Recent work on the three-ring conception of giftedness has investigated the ways that students can use their gifts in socially constructive ways. The original publication on the three-ring conception of giftedness challenged the traditional view of this concept as mainly a function of high scores on intelligence tests (Renzulli, 1978). This work was greeted by a less than enthusiastic reception from the gifted education field, which included rejections of the conception from all major journals. An audience was sought elsewhere, and in 1978 the *Kappan* published Renzulli's "What Makes Giftedness: Reexamining a Definition." In the ensuing decades, scholars, practitioners, and policy makers began to gain a more flexible attitude toward the meaning of the complex phenomenon called giftedness. That 1978 article is now the most widely cited publication in the field of gifted education and talent development.

As noted earlier, the three rings are embedded on a houndstooth background representing the interactions between personality and environment. A closer examination of the background components of environment and personality has been necessary to allow us to understand more fully the sources of gifted behaviors and, more important, the ways in which people transform their gifted assets into constructive action. A better understanding of

individuals who use their gifts in socially constructive ways will enable educators to create conditions that may eventually increase the number of people who contribute to the growth of social, as well as economic, capital. We believe that we can positively influence the ethics and decision-making of future leaders to help them value good works that make a difference. Renzulli (2002) attempted to address the relationships between "co-cognitive" personal characteristics and the role that these characteristics play in the development of social capital.

Financial and intellectual capital are well-known forces that drive the economy and generate highly valued tangible assets. Social capital includes intangible assets that address the collective needs and problems of other individuals and of communities at large. Investments in social capital benefit society because they help to create the values, norms, networks, and social trust that facilitate coordination and cooperation geared toward the greater public good.

Noncognitive Aspects of Intellectual Giftedness

In addition to cognitive contributors to the development of high performance, other factors, referred to by Renzulli (2005) as "intelligences outside the normal curve," have been found to play a role in the accomplishments of intellectually gifted individuals. Space does not enable a full discussion of all aspects of this research, but several personal factors appear to influence creative productivity. The following factors predict which individuals will commit to doing work that addresses collective needs and problems of other individuals and of society at large: optimism, courage, romance with a discipline, sensitivity to human concerns, physical/mental energy, and vision/sense of destiny (Renzulli, 2002). Each of these personal factors is briefly described next, and each co-cognitive factor interacts with, and enhances, the cognitive traits that are ordinarily associated with success in school and with the overall development of human abilities.

Optimism includes cognitive, emotional, and motivational components and reflects the belief that the future holds good outcomes. Optimism may be thought of as an attitude associated with expectations of a future that is socially desirable, to individuals' advantage, or to the advantage of others. It is characterized by a sense of hope and a willingness to accept hard work.

Courage is the ability to face difficulty, challenge, or danger while overcoming physical, psychological, or moral fears. Integrity and strength of character are typical manifestations of courage, and they represent the most salient marks of creative people who increase social capital.

Romance with a discipline is characterized by powerful emotions and desires. For children and adolescents, this romance often manifests as an image of the future and provides the motivation for a long-term commitment to a course of action (e.g., a child falls in love with film making, dinosaurs, ballet, theater, robotics, etc.).

Sensitivity to human concerns encompasses the abilities to comprehend others' affective world and to accurately and sensitively communicate such understanding through action. Altruism and empathy, aspects of which are evident throughout human development, characterize this trait.

Physical/mental energy is demonstrated in varying degrees in all individuals, but the amount of energy an individual is willing and able to invest in the achievement of a goal is a crucial issue in high levels of accomplishment. In the case of eminent individuals, this energy investment is a major contributor to task commitment. Charisma and curiosity are frequent correlates of high physical and mental energy.

Vision/sense of destiny may best be described by a variety of interrelated concepts, including an intense belief in one's work, internal locus of control, motivation, volition, and self-efficacy. When an individual has a vision or sense of destiny about future activities, events, and involvements, that vision serves to stimulate planning and to direct behavior and becomes an incentive for present behavior.

Applying Theory to Practice to Promote Leaders of the Future

Our work on environments has focused the characteristics of the school setting that nurtures the clusters in the three-ring conception of giftedness. One successful approach has been to develop an SEM immersion school called the Renzulli Academy, several of which have been developed in

Connecticut and elsewhere (Reis & Morales-Taylor, 2010). Students' abilities, task commitment, and creativity are nurtured in a total school approach to enrichment and talent development. High potential students in these academies demonstrate increased achievement scores on statewide tests, as well as high levels of student creative productivity across multiple areas of endeavor (Reis & Morales-Taylor, 2010).

A major assumption underlying the work in this area is that personality and environment are subject to modification. In the years ahead, we hope to examine additional environmental and school-related interventions that promote the types of behavior associated with each of the clusters, and with the environmental and personality aspects of the houndstooth pattern. These interventions will draw on existing and newly developed techniques that can be used within various school and extracurricular contexts. Definitive answers to questions about promoting the development of these components may be years away, but it is our hope that educators and psychologists will understand the importance of this challenge and pursue additional research that will contribute to our understanding of these types of questions. We also hope that educators will take steps to promote these types of traits through planned enriching learning activities and curricular opportunities.

Factors such as creativity, motivation, courage, optimism, sense of power to change things, empathy, and physical and mental energy are the traits that we respect in leaders and innovators such as Rachel Carson, Marie Curie, Nelson Mandela, and Martin Luther King (Renzulli, 2005). Combined with other noncognitive skills in executive functions such as collaboration, leadership, organization, planning, and self-efficacy, what emerges in the enhancements of the three-ring conception of giftedness extends far beyond the "golden chromosome" theory that previously led many educators and psychologists to believe that some people are preordained to be gifted.

SUMMARY AND CONCLUSIONS

Fundamental to our conception of giftedness is the difference between those who master information, even at very advanced levels, and those who create and produce new and important contributions to knowledge. Given the increasing access to an abundance of existing information in this century, characterized by the exponential knowledge expansion, our conception of giftedness focuses on how the most able students access and use information rather than merely how they accumulate, store, and retrieve it. Fundamental to our conception of giftedness is the belief that it is less important to label children as gifted and more important to develop the type of educational experiences that are necessary for the emergence of creativity and task commitment. SEM offers the types of educational services that enable some students to develop their intellectual, motivational, and creative assets to achieve high levels of creative productivity. The educational services described in this chapter develop the clusters in the three-ring conception of giftedness and may increase the likelihood that more students will pursue creative work in the future. The SEM gifted education services serve two purposes: They develop students' abilities, task commitment, and creativity and enable educators to increase the likelihood that more creative individuals will enhance our society by solving problems and producing new contributions to improve our world.

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