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Equity, Excellence, and Economy in a System for Identifying Students in Gifted Education: A Guidebook

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THE NATIONAL RESEARCH CENTER ON THE GIFTED AND TALENTED

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ABSTRACT

Controversy about which students should be selected for participation in programs for the gifted and talented has existed since the inception of special services for this segment of the school population. In most identification systems that follow the traditional screening-plus-selection approach, the "throwaways" have invariably been those students who qualified for screening on the basis of non-test criteria.

This monograph presents an identification system that attempts to address the excellence, equity, and economic issues. It is designed to be economical in terms of the time and paperwork required for identification, to provide access to special services for both traditionally high scoring students and those students whose potential may only be recognized through the use of a more flexible range of identification criteria.

Grounded in the Three-Ring Conception of Giftedness and the Enrichment Triad Model, and supported by a thorough review of research dealing with the underlying theories, it is flexible enough to accommodate talent potentials in different domains, and it will respect regulations made by district policy makers and state departments of education. It takes into consideration the fact that there is no perfect identification system. It is also firmly based on the assumption that there should be congruence between the criteria used in the identification process and the goals and types of services that constitute the day-to-day activities that students will pursue. This identification system therefore also attempts to activate a much broader range of services and teaching practices that are specifically designed to develop a variety of talents in young people.

Tidiness and efficiency are important to the operation of any complex enterprise, but they should never take the place of our responsibility to do the right thing in the best interests of the young people we serve through special services. Therefore, this identification system proposes that the services be labeled, rather than the students. Rather than labeling a student as "gifted" or "not gifted" this system provides for documenting specific strengths and using these strengths for making decisions about the types of activities and the levels of challenge that should be made available. This system provides for the identification of students who would benefit from services that recognize academic giftedness as well as creative-productive giftedness. It recognizes students with potential and provides opportunities to develop their talents through an integrated continuum of special services.

A key feature of this system is the formation of a Talent Pool that includes students who have been identified by both test and non-test criteria. The system respects and includes students who earn high scores on traditional measures, but leaves room for students who show their potentials in other ways. These potentials are recognized through teacher nominations, using the Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS), special nominations, and Action Information nominations. Training activities are provided to help teachers use the various nominations to best serve their students.

This identification system is not as tidy as using cut off scores, but the trade off for tidiness and administrative expediency results in a more flexible approach to identifying and serving young people with great potential.

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EXECUTIVE SUMMARY

Can a field that prides itself on promoting creativity and innovation in young people handle these processes itself? Deep seated values, attitudes, and beliefs about the meaning of giftedness and how we should go about identifying students for participation in special programs have been slow to change because the evidence that might lead to such change has been in conflict with long-standing attitudes that are the product of outdated research, personal beliefs, and an education system that places more emphasis on administrative expediency than on evidence that has resulted from recent research on the conceptions of human potential.

Tidiness and efficiency are important to the operation of any complex enterprise, but they should never take the place of our responsibility to do the right thing in the best interests of the young people we serve through special programs and services. Einstein, the personification of scientific giftedness across ages and cultures, said, "Not everything that can be counted counts, and not everything that counts can be counted." Controversy about which students should be selected for participation in programs for the gifted and talented has existed since the inception of special services for this segment of the school population. In most identification systems that follow the traditional screening-plus-selection approach, the "throwaways" have invariably been those students who qualified for screening on the basis of non-test criteria. Teacher nominations are often used as a ticket to take an individual or a group test, but in most cases the test score is the deciding factor. The strengths and evidence of potential that lead to the teacher nomination in the first place are totally ignored when it comes to the final selection decision. Thus the multiple criteria game ends up being a smoke screen for the same old test-based approach.

This monograph presents an identification system that attempts to address issues of excellence, equity, and economy. It is grounded in theory and supported by thorough review of research dealing with the underlying theories. It is designed to be economical in terms of the time and paperwork required for identification, to provide access to special services for both traditionally high scoring students and those students whose potential may only be recognized through the use of a more flexible range of identification criteria. It is flexible enough to accommodate talent potentials in different domains, and it will respect regulations made by district policy makers and state departments of education, especially since these entities often provide much needed financial assistance.

Three very important considerations guide the discussion of this identification system: First, it takes into consideration the fact that there is no perfect identification system. Because of the many conceptions of giftedness in existence in the literature, there is no one foolproof way of identifying giftedness. The first order of business for anyone wishing to identify and serve high potential youngsters is to decide on the conception or definition of giftedness adopted by a particular school or school system. This identification system is based on the Three-Ring Conception of Giftedness. Based on a thorough review of literature on the nature and measurement of intelligence, it posits that there are two kinds of giftedness: academic giftedness, and creative-productive giftedness. Both types of giftedness are important and often interact. Both types of giftedness, as well as the numerous occasions on which they interact should be encouraged in special programs and opportunities created for their development.

Academic giftedness refers to efficiency and success in traditional school learning situations. These test-taking and lesson-learning abilities generally remain stable over time. They exist in varying degrees, can be identified through standardized assessment techniques, and have been the kinds of abilities most often used for selecting students for special programs. They emphasize deductive learning, structured training in the development of thinking processes, and the acquisition, storage, and retrieval of information.

Creative-productive giftedness describes those activities where development of original material and products that are purposefully designed to have an impact on one or

more target audiences are emphasized. Learning situations for these abilities emphasize the use and application of information (content) and thinking processes in an integrated, inductive, and real-problem-oriented manner. These learners then use the *modus operandi* of firsthand inquirers. It is putting one's abilities to work on problems and areas of study that have personal relevance to the student and can be escalated to appropriately challenging levels of investigative activity.

Second, this identification system is firmly based on the assumption that there should be congruence between the criteria used in the identification process and the goals and types of services that constitute the day-to-day activities that students will pursue. It therefore also attempts to activate a much broader range of services and teaching practices that are specifically designed to develop a variety of talents in young people. The programming model for which this identification system was designed is the Schoolwide Enrichment Model (SEM). One of its major components is the exposure to a broad array of topics, issues, areas of study, and even single authors, events, or methods of inquiry that might become the objects of interest on the parts of single individuals or small groups of students. These interests may arise from specially planned program activities (Types I and II Enrichment in the Enrichment Triad Model) or from material covered in the regular curriculum. It is flexible enough for students to pursue in depth more focused topics of their own choosing (Type III) Enrichment in the Triad Model.

The third consideration in developing this identification system is that the services be labeled, rather than the students. Rather than labeling a student as "gifted" or "not gifted" this system provides for documenting specific strengths and using these strengths for making decisions about the types of activities and the levels of challenge that should be made available. This system provides for the identification of students who would benefit from services that recognize academic giftedness as well as creative-productive giftedness. The SEM is an organizational plan that recognizes students with potential and provides enrichment and acceleration opportunities to develop their talents through an integrated continuum of special services. This includes general enrichment for both wide-ranging and targeted subgroups, highly individualized curriculum modification procedures for rapid learners, and first-hand investigative opportunities for highly motivated individuals and small groups. Grouping arrangements vary, based on

commonalities in abilities, interests, learning styles, and preferences for various modes of expression.

The Three-Ring Conception of Giftedness is based on research that tells us that three interlocking clusters of ability characterize highly creative and productive people. These three clusters are well-above average, though not necessarily superior, ability, task commitment, and creativity. These clusters of ability are brought to bear on specific performance areas.

A key feature of this identification system is the formation of a Talent Pool that includes students who have been identified by both test and non-test criteria. The system respects and includes students who earn high scores on traditional measures, but leaves room for students who show their potentials in other ways. There are two ways in which we can gather information about human potential. Status information consists of test scores, previous grades or accomplishments, teacher ratings, and other pieces of information that we can put on paper before we evaluate a person's abilities. Status information is the best way to identify students with high levels of academic giftedness and is used in this identification system to select students with above average ability in traditional academic performance. The other type of information is action information. This is the type of dynamic interactions that take place when a person becomes extremely interested in or excited about a specific topic, and they occur when students come into contact with or are influenced by people, concepts, ideas, creative opportunities, or segments of knowledge in or out of school. These are the kinds of information about creativity and task commitment, which are not stable and not always present or absent and often displayed within situations where such behaviors are encouraged.

These potentials are recognized through teacher nominations. Teachers are trained to use the Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS), the instrument recommended for teacher ratings in this system. Opportunities also exist for alternative pathways at the discretion of the school or school system, and two "safety valves"—special nominations, and Action Information nominations—spotting unusually favorable "turn-ons" in the regular curriculum. Training activities are provided to help teachers use the various nominations to best serve their students. The transmission of an Action Information Nomination does not

guarantee inclusion in the Talent pool, but it does provide an opportunity to carefully review the situation to see if special services can be provided to benefit this student.

Where this system has been implemented, students, parents, teachers, and administrators have expressed high degrees of satisfaction with this approach. By eliminating many of the headaches usually associated with identification of gifted students, we gain support from teachers and administrators, and by expanding services to students below the top few percentile levels usually admitted into special programs and those students who gain entrance by non-test criteria, we eliminate sometimes justifiable criticism of those persons who know that these students are in need of special opportunities, resources, and encouragement.

The Achilles Heel of change is not guidelines or a dislike of anything that smacks of "subjective" criteria. The Achilles Heel of change is apathy. If we truly believe that more flexibility is desirable, we must mobilize those who have a stake in serving high potential youth. This identification system is not as tidy as using cut off scores, but the trade off for tidiness and administrative expediency results in a more flexible approach to identifying and serving young people with great potential.

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Equity is not the product of similarity.
It is the cheerful acknowledgment of differences.

Harlan Cleveland, President
World Academy of Art and Science

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Not every child has an equal talent
or an equal ability or equal motivation;
but all children have the equal right to
develop their talent, ability, and motivation.

John F. Kennedy

PROLOGUE: Can Our Field Handle Change?

Can a field that prides itself on promoting creativity and innovation in young people do it alone? In his keynote address on *A Nation Deceived* (Colangelo, Assouline, & Gross, 2004), a powerful new document on academic acceleration, Nick Colangelo said, "When attitude and evidence come into conflict, attitude wins—usually hands down!" And in a recent article in *Scientific American* dealing with the role that beliefs play in our acceptance of an idea or a concept, Michael Schermer wrote "even smart people believe in 'weird' things because they are skilled at defending beliefs they arrive at for a variety of personal, social, and cultural reasons" (Schermer, 2002, p. 19). Deep seated values, attitudes, and beliefs about the meaning of giftedness and how we should go about identifying students for participation in special programs have been slow to change. Perhaps the evidence that might lead to such change conflicts with long-standing attitudes that emanate from outdated research, personal beliefs, and an education system that places more emphasis on administrative expediency than on solid evidence of human potential.

Researchers and scholars studying human potential are in almost unanimous agreement about how current research supports a broadened conception or giftedness (Siegler & Kotovsky, 1986), and the majority of policy makers and practitioners have embraced the new evidence. Unfortunately, the need for efficiency and tidiness on the parts of policy makers, teachers, administrators, and parents has thwarted efforts to implement more flexible identification procedures that will enable us to serve students who have not been identified under this broadened conception. Tidiness and efficiency are important in any complex enterprise, but they should never override our responsibility to serve high potential young people in special programs and services that may change their lives. And the fact that "we have always done it this way" should never be used as an excuse for not examining new evidence that might lead to a change in attitude. Donald Campbell, one of the leading educational researchers of the past century once explained that, "It is better to have imprecise answers to the right questions than precise answers to the wrong questions." And Albert Einstein, who personified the pinnacle of scientific giftedness across ages and cultures, said, "Not everything that can be counted counts, and not everything that counts can be counted." Educators often invoke Einstein's name when discussing the justification for gifted programs, but, at the same time, many are reluctant to act on his wisdom if it means changing the traditional way we identify students for special programs.

The greatest difficulty in changing anything, especially long-standing procedures used in education, is not gaining acceptance for new ideas, but rather in freeing ourselves from traditions that shackle us to past practices. Everything that impinges on schools is changing. Our population, school demographics, and the role of schools in a shifting job and global market are changing; technology, communication, transportation, and the ways we do business are changing. Educators of gifted and talented students have talked for decades about *identification being a continuous and ongoing process.* A basic tenet in the field of gifted education is that identification *should* indeed be a continuous cycle, but too often, this essential part of gifted program identification remains an event that occurs on a certain day for a certain grade and results in the certification of giftedness for some and withholding the label for others. Worse yet, the label seldom changes during the entire course of a child's school career.

After the elusive label is earned, services are supposed to be delivered that many educators describe as "individualized" and/or "qualitatively differentiated." It is not uncommon, however, for most students identified for special programs to do the exact same work as most other students most of the time (Archambault et al., 1993; Westberg, Archambault, Dobyns, & Salvin, 1992). It's time for some changes to occur in the way we define, identify and serve high potential students, especially if we are ever going to include more students who come from backgrounds of poverty, are culturally and linguistically diverse, or are extremely creative. But the question must be asked: Do we have the will and the courage to pursue this essential work?

The identification system described in this monograph was designed to change the ways we define and select students for special services. But it also attempts to use the identification process as an "activator" that will set in motion a much broader range of services and teaching practices specifically designed to develop a variety of talents in young people. Like any other identification system, it is not perfect, but it does place a major responsibility for decision making on teachers who are responsible for both the identification and delivery of services in their own schools and districts. And the system is intentionally developed to be modified, depending on the populations served and the resources available at the local level. A gifted program in a school that serves large numbers of traditionally high achieving students will, by design, be different from the program in a school that serves lower achieving students. But the most important issue is that in both schools there are students who need opportunities, resources, and encouragement that accommodate their ability to perform at levels above and beyond the regular curriculum that is offered to all students in their respective schools.

The identification system described here is both theory-based and supported by a wide variety of research studies—and this combination should be a requirement for any identification system. The system is designed to promote excellence and to bring equity to the identification process by providing access to special services for both traditionally high scoring students and those whose potentials may only be recognized through the use of a more flexible range of identification criteria. This identification system is also designed to be economical in terms of the amount of time and paperwork required for identification. Often, attempts to provide more equity in identification result in throwing

so much paperwork at the process that it becomes inordinately time consuming and unwieldy, providing only a smokescreen behind which to hide the equity issue. Moreover, identification processes can be made so expensive that they consume most of the funding intended for services.

Most of all, the system is designed to bring equity and fairness to a long-standing tradition in the field of gifted education—a tradition that has made the field the subject of a never-ending stream of criticism. Critics have argued that while elitist practices and the use of "special favors" provide services to some, these practices jeopardize some of our most potentially able young people for whom the gates of these services remain closed. This can be changed! The identification approach described in this monograph is not radical, nor does it require massive amounts of professional development and paperwork. But it *is* a change in the way giftedness is viewed by some in our field, and the ways we identify some high potential students for special services. The question is: Can our field handle the change?

The Identification Issue in Perspective

Controversy about which students should be selected for participation in programs for the gifted and talented has existed since the inception of special services for this segment of the school population. In more recent years, attention has focused on the well-documented under representation of low income and culturally diverse students in gifted programs. A major study documenting this problem (Donovan & Cross, 2002) highlighted the need to explore more flexible identification procedures that will provide more equity to the selection of students who have been denied access, while simultaneously, maintaining excellence and challenging high performing students who have been identified through traditional testing procedures. In addition to the moral imperative to include more diverse students, educators must take action, as the very existence of programs for the gifted has been threatened by political action on the parts of underrepresented groups and recent rulings by the Office of Civil Rights. Under these circumstances, it is imperative that educators implement identification practices that enable existing gifted programs to survive while simultaneously providing greater flexibility for access to programs. Both traditionally high achieving students and high

potential students from underrepresented groups deserve these identification practices and the opportunities to participate in appropriately challenging services. The following two case studies illustrate how a more flexible identification system can be responsive to both high achieving giftedness and high potential giftedness.

Elaine: A Case Study of High Achieving Giftedness

Special services should be viewed as opportunities to *develop* gifted behaviors rather than merely to find and certify them. In this regard, we should judiciously strive to define giftedness in terms of particular strengths that bring certain students to our attention. These strengths provide direction for special program accommodations that are a logical and direct derivative of identifiable strength areas. It is easier to gain support for gifted programs (especially among skeptical parents, professionals, and policy makers) when we think in terms of behavioral definitions rather than generic labels. In a certain sense, the "label" (which is sometimes more important to parents than the actual development of their child's talents) is implicit by the very nature of membership in a designated program. Statements such as "Elaine is a gifted third grader" may offend many people and lead to accusations of elitism and special privilege that have plagued special programs and resulted in backlash from many educators and parents of unselected students. But note the small but important difference in orientation when we focus on the behavioral characteristics that brought this child to our attention in the first place: "Elaine is a third grader who reads at the adult level and who has a fascination with biographies about women scientists." And note the logical and justifiable services that were provided for Elaine under the guidance of her classroom teacher. Elaine was allowed to substitute for the third grade reader more challenging books in her interest area; she left the school two afternoons a month to meet with her mentor, a local journalist specializing in gender issues; and during time made available through curriculum compacting in her strength areas (e.g., reading, language arts, and spelling), the enrichment resource specialist helped Elaine prepare a questionnaire and an interview schedule that was administered to local women scientists. An article based on her research was published in a local newspaper, she has made several presentations to other

students and community groups, and she has appeared as a guest on local television talk-show programs.

Could even the staunchest opponent of programs for the gifted argue against the logic or the appropriateness of these services? When programs focus on developing the behavioral potentials of individuals or of small groups whose members share common interests, we can avoid the usual controversies that have caused so many people to develop anti-gifted attitudes. By *labeling the services rather than the students* we achieve the same goals for students, but benefit from the logic of defensible educational practices with which no one can argue.

Kelvin: A Case Study of High Potential Giftedness

Kelvin is an example of a student who would not be selected for a gifted program based solely on test scores but he has demonstrated high levels of motivation, excitement about learning, and creativity as determined by teacher ratings and some of the projects he has worked on in school. Two afternoons a week, 12-year-old Kelvin participates in an enrichment cluster in an urban school that serves predominately minority students. When he was selected for the program Kelvin said, "It feels good, but I was amazed. I was about to faint! I was super, super surprised." The reason for Kelvin's amazement was that he had never considered himself to be a great student, at least not in the traditional way. And the program was not exactly the kind of place you would expect to find youngsters like Kelvin, who lives in subsidized housing and whose family manages to survive on a monthly welfare check and food stamps.

But the enrichment cluster in which Kelvin is enrolled looks at talent development in a different way. Based on the Schoolwide Enrichment Model (SEM), the program seeks to identify and serve a broad range of talent potentials in students who show signs of superior potential but whose test scores would not place them in the top percentiles ordinarily required for special program placement. The use of a strength assessment guide called the Total Talent Portfolio helps to focus attention on student interests and learning-style preferences, preferences for various modes of expression, as well as on strengths in traditional subjects. Kelvin's strongest academic area is mathematics, and, through a process called curriculum compacting, he is now being provided with

mathematics material that is two grade levels above the level of the math being covered in his classroom.

Kelvin, who once described himself as a "mental dropout," now finds school a much more inviting place. He used the research he did in his enrichment cluster on the design of airplane wings to enter a state science fair competition in which he earned a bronze medal. This work coupled with guidance and encouragement from his teachers caused him to think about going to college, something he said never entered his mind until he became involved in the enrichment program. He is thinking about a career in engineering, and the enrichment specialist has helped him apply for a summer program at the University of Connecticut that is designed to expose members of minority groups to professions that are related to mathematics and engineering. "School," says Kelvin, "is a place where you have must-dos and can-dos. I work now harder on my must-dos so I can spend more time working on my can-dos."

Kelvin is an example of the ways in which numerous students are being given opportunities to develop talent potentials that too many schools have ignored for too many years. The type of program in which Kelvin is involved is not a radical departure from present school structures, but it is based on assumptions about learners and learning that are different from those that have guided public education for many years. Through the use of a more flexible identification system we can serve both traditionally high-achieving students such as Elaine, and students such as Kelvin who have high potential but show their talents in a variety of other ways.

Theory Into Practice

What everyone needs to understand is that there is no perfect identification system! All identification systems are a compromise between varying ideologies, personal beliefs, and vested interests on the parts of state officials that oversee school programs, school administrators that are responsible for overseeing gifted programs, and the children and parents who want access to these programs for their children. To enable deserving students of diversity or poverty to be served, it is necessary for all of these groups to approach any discussion about identification with an open mind, a sense of fairness, and a willingness to compromise in the best interest of providing educational

opportunities that transcend the lack of challenge that high potential students usually experience in the regular curriculum.

The Excellence vs. "Watering Down" Issue

Pursuing both equity and excellence is not an easy task! Efforts to extend services to a broader spectrum of the school population have met with resistance because of fears about "watering down" the quality of services, concerns about increased costs, and the mountains of paperwork that regulatory agencies sometimes attach to plans for more comprehensive identification practices. The biggest challenge for any kind of change in the identification process is how we can make it more equitable, while at the same time, still maintain a high degree of quality. It is easy to jump to the conclusion that any change in the identification process will result in compromising the excellence to which all programs for the gifted aspire. But one of the main goals of special services designed to develop giftedness and high levels of talent is a consideration of the characteristics that brought these youngsters to our attention in the first place. It is the individual abilities, interests, creativity, motivation, learning styles, and preferred styles of expression that should be the driving forces in making decisions about how we provide the most challenging learning environment for each identified student.

Students in gifted programs differ as much from one another on these characteristics as they differ from students in the general population. Were it not for the attention that must be given to the role that these characteristics should play in special programs, then we could legitimately ask questions about why we should have special programs in the first place, and what makes gifted education qualitatively different from general education. Classes in general education are characterized by a common curriculum, with most students pursuing the same assignments, taught in the same manner, most of the time. Our research in a nationwide classroom practices study (Archambault et al., 1992) found that classroom teachers make only minor modifications in the regular curriculum to meet the needs of gifted students. The Classroom Practices Observational Study (Westberg et al., 1992) extended the results of the classroom practices survey by examining the instructional and curricular practices used with gifted and talented students in 46 regular elementary classrooms throughout the United States.

Across five subject areas and 92 observation days, gifted students received instruction in homogeneous groups only 21% of the time, and more alarmingly, the targeted gifted and talented or high ability students experienced no instructional or curricular differentiation in 84% of the instructional activities in which they participated.

The hallmark of good programs for the gifted should be the promotion of excellence by providing experiences that are purposefully the opposite of what characterizes general education. Excellence in programs for the gifted does not come from how we identify students, but rather what we do with students to challenge the unique strengths that brought them to our attention. Identification can tell us which students have demonstrated high performance and/or high potential, but identification does not, in and of itself, tell us anything about the quality of the experiences that a program provides. Information about the characteristics listed above, and a programming model that addresses these characteristics are the major factors that influence the quality of a program and the levels of excellence that it produces.

The identification process described in this monograph is not designed to identify ability for ability's sake, nor to merely provide a label, nor to congratulate students for being born into the right family nor having the advantages of good schools and supportive environments. Rather, the identification procedures are designed to target strengths in those students who have displayed high levels of performance or potential to perform at high levels, strengths that can serve as the basis for a more individualized approach to serving students in special programs.

Any change in the identification process that is perceived to endanger the designation of a child as "a certified gifted student" is undoubtedly troubling to parents or educators who fear that changes in identification will result in reducing the level of program quality. This fear of change may result in unwarranted "watering down" criticism or a concern that the program is no longer serving "the truly gifted." These criticisms are not uncommon when schools make special efforts to search out high potential minority students or students who show their creative potentials in ways that may not be recognized through traditional testing procedures. They are, however, unwarranted when we use a continuum of services to provide for the needs of all gifted and talented students. A continuum of services provides a series of program options that

range from full-time schools and classrooms to part-time pullout services for independent studies based on interests. Although it may be counterintuitive, a modification in identification that changes the focus from ability for ability's sake to one that targets individual levels of performance and potential actually strengthens program quality and excellence in student performance. Program managers and teachers are provided with information that focuses programming practices on the unique strengths of individuals rather than the same kinds of "batch processing" found in general education and even in some programs for the gifted!

Over the years I have conducted numerous evaluations of special programs for the gifted. Although the topics covered in these programs were usually different from those covered in regular classrooms, seldom were the methods of teaching, the responsibilities of teachers, or the roles of students recognizably different from the pedagogy found in general education. *Qualitative* differentiation should first and foremost be characterized by differences in the *ways* learning is pursued, the nature and extent of student engagement, the active and investigative roles assumed by students, and the originality of student products. And the teacher's role should be transformed from one of authoritative disseminator of knowledge to one that approximates the work of a coach, critical friend, resource procurer, and "guide-on-the-side." I sometimes refer to this role as "the resident escalator." This puts the locus of control for learning on the students with the teacher on the sideline, more often than in general education.

A more flexible identification system does not mean that high potential students will enter the program with the same academic backgrounds as high performance students, nor does it mean that they need services that are identical to those needed by students with higher levels of preparation. For if we put these students in the same "foot race" as students performing at high levels, we will undoubtedly have to slow down the pace of instruction to enable them to succeed. But, as indicated above, opportunities for a continuum of services and attention to individual strength areas will result in each student developing his or her unique strengths and talents in ways that are challenging for all but different in the material covered and the ways in which it is taught.

PART I: Background—The Why Question

This monograph presents an identification system that attempts to address the excellence, equity, and economy issues There are three very important considerations to keep in mind as we explore an identification process that will be applicable to large and diverse school populations; that will be economical in terms of the time and resources necessary to identify students; that will be flexible enough to accommodate talent potentials in different domains; and that will respect regulations made by district policy makers and state departments of education (especially in those cases where some level of financial reimbursement is provided by state agencies).

Consideration 1: There is No Perfect Identification System! First, there is no perfect way to identify who is or is not gifted, just as there is no single best way to develop the gifts and talents of all potential special program candidates. Because of the many conceptions of giftedness that can be found in the theoretical and research literature (Sternberg & Davidson, 1986, in print), the first and most important decision to be made regarding practical procedures for identification is the conception of giftedness adopted by a particular school or school system.

Consideration 2: The Relationship Between Identification and Programming. A second consideration is that there must be congruence between the criteria used in the identification process and the goals and types of services that constitute the day-to-day activities that students will pursue. This consideration is so important that it might be viewed as "a golden rule" of identification! Therefore, a second but related decision is the selection of a programming model that will be used to guide direct and indirect services to students. Again, there are numerous programming models recommended for serving this population, and these programming models can be divided into two categories. Organizational or administrative models deal with how we group students and move them from one activity to another (e.g., full-time classes, pull out programs, regular class inclusion approaches, to mention only a few). Theoretical or pedagogical models focus on the kind and quality of learning experiences that are offered within any grouping or organizational arrangement. The Enrichment Triad Model (Renzulli, 1977), the Autonomous Learner Model (Betts 1986), and a variety of

acceleration, problem-based, and Socratic reasoning approaches are examples of theoretical or pedagogical models.

Consideration 3: Targeting Gifted Behaviors and Labeling Services. A third consideration is derived from the first and second considerations discussed above. This concern relates to the degree of specificity that we are attempting to achieve in the identification process. In recent years a large body of research has argued very forcefully against labeling a student as either "gifted" or "not gifted" (Frasier, García, & Passow, 1995; Renzulli & Reis, 1997; Winner, 1996), and in some cases recommendations have been made to do away with any labeling altogether (Borland, 2004). A more current trend is to document specific strengths and to use these strengths for making decisions about the types of activities and the levels of challenge that should be made available, thus respecting the golden rule mentioned above. Behavioral definitions (i.e., targeting specific strengths) are considered to be important because if we know and can document particular strengths there is a greater likelihood that schools will attend to these needs in targeted students. This approach also helps to introduce an element of accountability into programming and gives direction to efforts that schools should take in evaluating their programs. It would be "nice" to think that we can do away with any kind of labeling whatsoever, but the reality is that we can't make accommodations for students if we don't recognize individual strengths. And experience has shown that far too many schools claiming to "differentiate" for all students have, in reality, provided minimal or no advanced level opportunities for high potential students.

Labeling of any kind is always a controversial issue! In recent years an approach that has gained in popularity is ***to label the service rather than the student*** (Renzulli & Reis, 1994, 1997). For example, an enrichment cluster entitled Statistical Techniques for Young Researchers was specifically designed for upper elementary students with strong aptitudes in mathematics who can benefit from material that was much more advanced than the math being covered in their sixth, seventh, and eighth grade math classes. Another example of a labeled service is Curriculum Compacting (Renzulli, Smith, & Reis, 1982), which is a within-classroom process that teachers use for students who have already mastered the concepts and skills to be taught, and/or who can cover the regular material at a faster pace and higher level of comprehension than their age mates. This

process is built around specific procedures for identifying particular strength areas, and documenting these competencies in a systematic fashion for use in student records, consultation with teachers and parents, and as a source of program evaluation data. The plan also includes suggestions for advanced level enrichment and/or acceleration activities.

It is important to keep these three considerations in mind as you review the identification system presented in this monograph. The system is based on a conception of giftedness and a programming model that are specifically designed to guide efforts to serve high potential youth and to introduce elements of excellence, equity, and efficiency into the identification process. The conception of giftedness that underlies this work is the Three-Ring Conception of Giftedness (Renzulli, 1986, in print) and the programming model is the Schoolwide Enrichment Model (Renzulli & Reis, 1997). The identification system described in this monograph is intended to bring both theoretical integrity (Renzulli, 1977) and the supporting research (Renzulli & Reis, 1994) to bear on practical procedures that will be used to identify students who can benefit maximally from the special services the program will provide.

The research and theoretical rationales for these two approaches can be found at:
The Three-Ring Conception of Giftedness
[www.gifted.uconn.edu/sem/semart13.html]
The Definition of High-End Learning
[www.gifted.uconn.edu/sem/semart10.html]

In the section that follows, a few major points from these references will be discussed because they are essential to understanding the identification system that is the major focus of this monograph.

Purposes and Criteria for a Definition of Giftedness

One of the first and most important issues that should be dealt with in a search for the meaning of giftedness is that there must be a purpose for defining this concept. The goals of science tell us that a primary purpose is to add new knowledge to our

understanding about human conditions, but in an applied field of knowledge there is also a practical purpose for defining concepts. Persons who presume to be the writers of definitions should understand the full ramifications of these purposes and recognize the practical and political uses to which their work might be applied or misapplied. A definition of giftedness is a formal and explicit statement that might eventually become part of official policies or guidelines. Whether or not it is the writer's intent, such statements will undoubtedly be used to direct identification and programming practices, and therefore we must recognize the consequential nature of this purpose and the pivotal role that definitions play in structuring the entire field. Definitions are open to both scholarly and practical scrutiny, and for these reasons it is important that a definition meet the following criteria:

1. It must be based on the best available research about the characteristics of gifted individuals rather than romanticized notions or unsupported opinions.
2. It must provide guidance in the selection and/or development of instruments and procedures that can be used to design defensible identification systems.
3. It must give direction, and be logically related to programming practices such as the selection of materials and instructional methods, the selection and training of teachers and the determination of procedures whereby programs can be evaluated.
4. It must be capable of generating research studies that will verify or fail to verify the validity of the definition.

In view of the practical purposes for which a definition might be used, it is necessary to consider any definition in the larger context of overall programming for the target population we are attempting to serve. In other words, the way that one views giftedness serves as a primary factor in both constructing a plan for identification and in providing services that are relevant to the characteristics that brought certain youngsters to our attention in the first place. If, for example, one identifies giftedness as extremely

high mathematical aptitude, then it would seem nothing short of common sense to use assessment procedures that readily identify potential for superior performance in this particular area of ability. And it would be equally reasonable to assume that a program based on this definition and identification procedure should devote major emphasis to the enhancement of performance in mathematics and related areas. Similarly, a definition that emphasizes artistic abilities should point the way toward relatively specific identification and programming practices. As long as there are differences of opinion among reasonable scholars there will never be a single definition of giftedness, and this is probably the way that it should be. But one requirement for which all writers of definitions should be accountable is the necessity of showing a logical relationship between definition on one hand and recommended identification and programming practices on the other.

Two Kinds of Giftedness

A second issue that must be dealt with is that our present efforts to define giftedness are based on a long history of previous studies dealing with human abilities. Most of these studies focused mainly on the concept of intelligence and are briefly discussed here to establish an important point about the process of defining concepts rather than any attempt to equate intelligence with giftedness. Although a detailed review of these studies is beyond the scope of the present monograph, a few of the general conclusions from earlier research are necessary to set the stage for this analysis.

The first conclusion is that intelligence is not a unitary concept, but rather there are many kinds of intelligence and therefore single definitions cannot be used to explain this complicated concept. The confusion and inconclusiveness about present theories of intelligence has led Sternberg (1984) and others to develop new models for explaining this complicated concept. In view of this work and numerous earlier cautions about the dangers of trying to describe intelligence through the use of single scores, it seems safe to conclude that this practice has been and always will be questionable. At the very least, attributes of intelligent behavior must be considered within the context of cultural and situational factors. Indeed, some of the most authoritative examinations have concluded

"the concept of intelligence *cannot* be explicitly defined, not only because of the nature of intelligence but also because of the nature of concepts" (Neisser, 1979, p. 179).

A second conclusion is that there is no ideal way to measure intelligence and therefore we must avoid the typical practice of believing that if we know a person's IQ score, we also know his or her intelligence. Even Terman (1926) warned against total reliance on tests: "We must guard against defining intelligence solely in terms of ability to pass the tests of a given intelligence scale" (p. 131). E. L. Thorndike (1921) echoed Terman's concern by stating "to assume that we have measured some general power which resides in [the person being tested] and determines his ability in every variety of intellectual task in its entirety is to fly directly in the face of all that is known about the organization of the intellect" (p. 126).

The reason I have cited these concerns about the historical difficulty of defining and measuring intelligence is to highlight the even larger problem of isolating a unitary definition of giftedness. At the very least, we will always have several conceptions (and therefore definitions) of giftedness; but it will help in this analysis to begin by examining two broad categories that have been dealt with in the research literature. I will refer to the first category as "academic giftedness" and to the second as "creative-productive giftedness." Before going on to describe each type, I want to emphasize that:

1. Both types are important.
2. There is often an interaction between the two types.
3. Special programs should make appropriate provisions for encouraging BOTH types of giftedness as well as the numerous occasions when the two types interact with each other.

Academic Giftedness

Academic giftedness is the type of giftedness typically associated with efficiency and success in traditional school learning situations. It is the kind most easily measured by IQ, achievement, or other cognitive ability tests. For this reason, it is also the type most often used for selecting students for entrance into special programs. The abilities people display on IQ and aptitude tests are exactly the kinds of abilities most valued in

traditional school learning situations. In other words, the games people play on ability tests are similar in nature to games that teachers require in most lesson-learning situations. Research tells us that students who score high on IQ tests are also likely to get high grades in school. Research also has shown that these test-taking and lesson-learning abilities generally remain stable over time. The results of this research should lead us to some very obvious conclusions about academic giftedness: it exists in varying degrees; it can be identified through standardized assessment techniques; and we should therefore do everything in our power to make appropriate modifications for students who have the ability to cover regular curricular material at advanced rates and levels of understanding. Curriculum Compacting (Renzulli, Smith, & Reis, 1982, 1992), a procedure used for modifying curricular content to accommodate advanced learners, and other acceleration techniques should represent an essential part of any school program that strives to respect the individual differences that are clearly evident from scores yielded by cognitive ability tests. Academically advanced students are more often bored by their daily experience than are average or below-average students for whom the material is in many cases challenging. Nancy Robinson calls it the "misery factor" and believe it behooves us to modify things for these kids because we have, by our requiring them to be in school 180 days x 6 hours x 13 years, created an especially uncomfortable situation for them (personal communication, January 28, 2005).

Although there is a generally positive correlation between IQ scores and school grades, we should not conclude that test scores are the only factors that contribute to success in school. Because IQ scores correlate only from .40 to .60 with school grades, they account for only 16-36% of the variance in these indicators of potential. Many youngsters who are moderately below the traditional 3-5% test score cutoff levels for entrance into gifted programs clearly have shown that they can do advanced-level work. Indeed, most of the students in the nation's major universities and 4-year colleges come from the top 20% of the general population (rather than just the top 3-5%) and Jones (1982) reported that a majority of college graduates in every scientific field of study had IQs between 110 and 120. Are we "making sense" when we exclude such students from access to special services? To deny them this opportunity would be analogous to *forbidding* a youngster from trying out for a basketball team because he or she missed a

predetermined "cutoff height" by a few inches! Basketball coaches are not foolish enough to establish *inflexible* cutoff heights because they know that such an arbitrary practice would cause them to overlook the talents of youngsters who may overcome slight limitations in inches with other abilities such as drive, speed, teamwork, ball-handling skills, and perhaps even the ability and motivation to out jump taller persons who are trying out for the team. As educators of gifted and talented youth, we can undoubtedly take a few lessons about flexibility from coaches!

Creative-Productive Giftedness

If scores on IQ tests and other measures of cognitive ability only account for a limited proportion of the common variance with school grades, we can be equally certain that these measures do not tell the whole story when it comes to making predictions about creative-productive giftedness. Before defending this assertion with some research findings, let us briefly review what is meant by this second type of giftedness, the important role that it should play in programming, and, therefore, the reasons we should attempt to assess it in our identification procedures; even if such assessment causes us to look below the top 3-5% on the normal curve of IQ scores.

Creative-productive giftedness describes those aspects of human activity and involvement where a premium is placed on the development of original material and products that are purposefully designed to have an impact on one or more target audiences. Learning situations that are designed to promote creative-productive giftedness emphasize the use and application of information (content) and thinking processes in an integrated, inductive, and a real-problem-oriented manner. The role of the student is transformed from that of a learner of prescribed lessons to one in which she or he uses the *modus operandi* of a firsthand inquirer. This approach is quite different from the development of academic giftedness that tends to emphasize deductive learning, structured training in the development of thinking processes, and the acquisition, storage, and retrieval of information. In other words, creative-productive giftedness is simply putting one's abilities to work on problems and areas of study that have personal relevance to the student and that can be escalated to appropriately challenging levels of investigative activity. The roles that both students and teachers should play in the pursuit

of these problems have been described elsewhere (Renzulli, 1982, 1983). It is important to point out, however, that "personal relevance" and the development of high levels of interest in particular topics and potential areas of study do not appear out of thin air. One of the major components of the programming model for which this identification system was designed is the exposure to a broad array of topics, issues, areas of study, and even single authors, events, or methods of inquiry that might become the objects of interest on the parts of single individuals or small groups of students. These interests may arise from specially planned program activities (Types I and II Enrichment in the Enrichment Triad Model) or from material covered in the regular curriculum. A comprehensive program should advance students both broadly across a wide range of the basic disciplines, and it should also be flexible enough for students to pursue in depth more focused topics of their own choosing (Type III Enrichment in the Triad Model). It is this in-depth pursuit that has led to the recognition of gifted contributors in the society at large and to extraordinary accomplishments in young people who have been recognize as "gifted."

Why is creative-productive giftedness important enough for us to question the "tidy" and relatively easy approach that traditionally has been used to select academically gifted students on the basis of test scores? Why do some people want to rock the boat by challenging a conception of giftedness that can be numerically defined by simply giving a test? The answers to these questions are simple and yet very compelling. The research tells us that there is much more to the making of a gifted person than the abilities revealed on traditional tests of intelligence, aptitude, and achievement. Furthermore, history tells us it has been the creative and productive people of the world, the producers rather than consumers of knowledge, the reconstructionists of thought in all areas of human endeavor, who have become recognized as "truly gifted" individuals. We know of the Einsteins, Edisons, and Rachel Carsons of the world because of what they did, not because of how they scored on tests! And it is these kinds of inquirers and creators that should be the major focus of who we serve in gifted education programs. History does not remember persons who merely scored well on IQ tests or those who learned their lessons well. This is in no way intended to discount nor minimize the importance of traditionally high achieving people, many of whom fulfill important roles in their respective professions.

The identification system described in this monograph does not "discriminate" against high IQ students or those that exhibit high levels of academic giftedness; the Schoolwide Enrichment Model (SEM) purposefully includes services that specifically accommodate any and all advanced levels of performance on the parts of traditionally high achieving students. But if we are to "open up" access to services to young people who have high potentials in the broad range of performance domains, then a focus on creative productive giftedness also becomes a requirement for a truly comprehensive program for talent development. Such access is particularly important for students from diverse cultural backgrounds and those who have not enjoyed the advantages of more affluent youngsters.

What Is the Schoolwide Enrichment Model?

An Integrated Continuum of Special Services

The Schoolwide Enrichment Model is an organizational plan for delivering enrichment and acceleration through an *integrated* continuum of services (see Figure 1). The word "integrated" is emphasized because maximum payoff is achieved when a service provided through one component of the model enables students who show superior performance or advanced interest to escalate their experience through options that might be available through other service delivery components. Services provided by the model range from general enrichment for both wide-ranging and targeted subgroups to highly individualized curriculum modification procedures for rapid learners and first-hand investigative opportunities for highly motivated individuals and small groups. The model also includes a broad array of specific grouping arrangements based on commonalities in abilities, interests, learning styles, and preferences for various modes of expression.

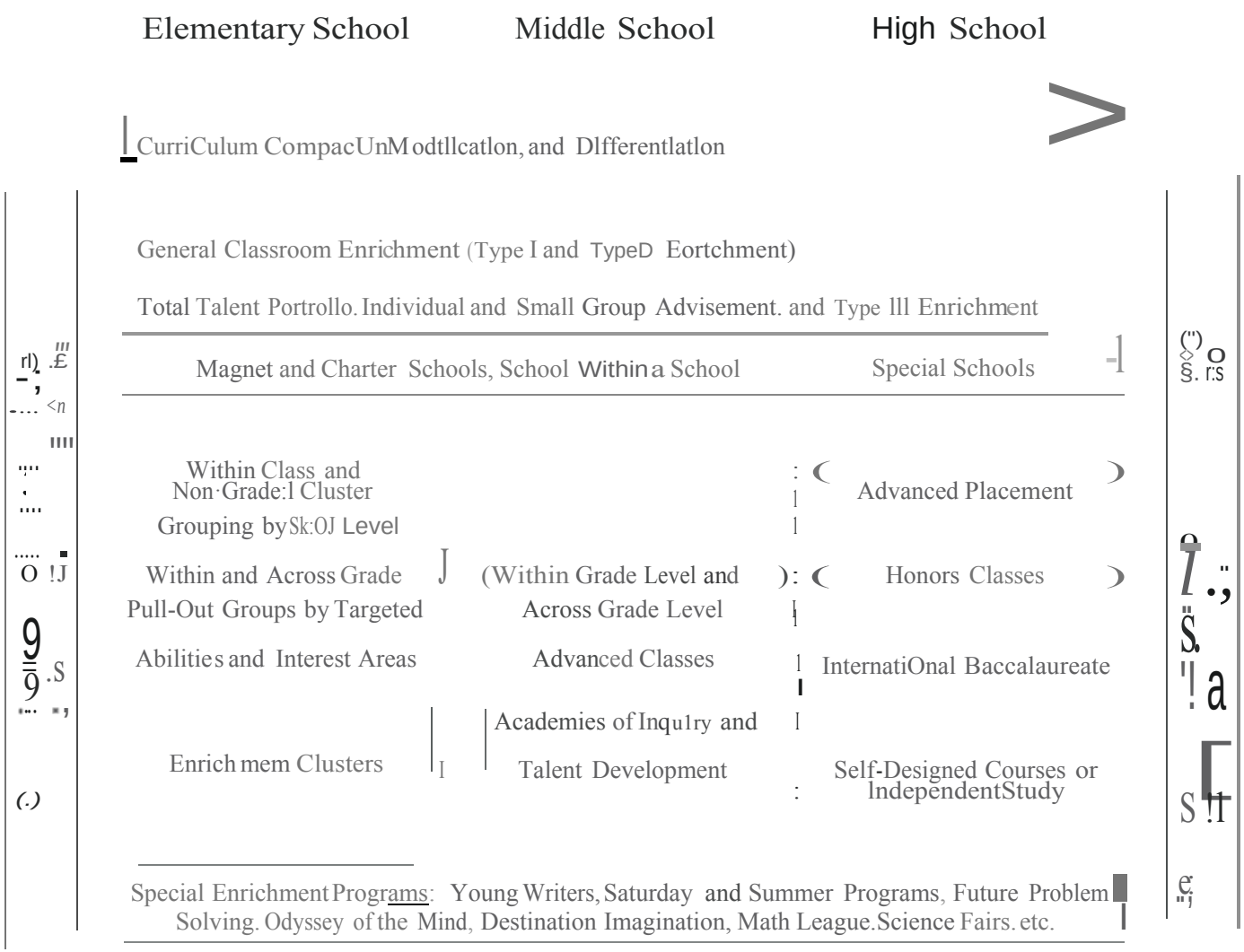
Elementary School
Middle School
High School
Curriculum Compacting, Modification, and Differentiation
General Classroom Enrichment (Type I and Type II Enrichment)
Total Talent Portfolio, Individual and Small Group Advisement, and Type III Enrichment
Magnet and Charter Schools, School Within a School
Special Schools
Within Class and Non-Graded Cluster Grouping by Skill Level
Within and Across Grade Pull-Out Groups by Targeted Abilities and Interest Areas
Enrichment Clusters
(Within Grade Level and Across Grade Level
Advanced Classes
Academies of Inquiry and Talent Development
Advanced Placement
Honors Classes
International Baccalaureate
Self-Designed Courses or Independent Study
Special Enrichment Programs: Young Writers, Saturday and Summer Programs, Future Problem Solving, Odyssey of the Mind, Destination Imagination, Math League, Science Fairs, etc.
Individual Options:
Internships
Apprenticeships
Mentorships

Figure 1. The integrated continuum of special services.

Services based on the Enrichment Triad Model form the core of the enrichment dimension of the SEM, but the model also includes various acceleration options (e.g., grade skipping, enrollment in college classes) and numerous supplementary program options that provide opportunities for talent development in specialized areas (e.g., Math League, Invention Convention, National History Day Competition, to mention only a few of the hundreds of available options). Other components of the model include performance-based assessment of student strengths, individual and group counseling, and various special placement options (within and outside the school) based on high degrees of proficiency and potential.

Figure 1 provides a graphic overview of the integrated continuum of services. The arrow on the left-hand side of the figure, Continuum of Potentials (Input) is intended to convey the broad range of abilities, interests, and learning styles that exist in any population and subpopulation of students. Even in highly targeted groups (e.g., advanced math students), there is always a range of abilities, interests, and learning styles, and this range requires that differentiated learning experiences must be provided to accommodate individual differences. Although it has become somewhat of a cliché, there are in fact as many differences in a selected group of students as exist between gifted students and the population in general.

The arrow on the right hand side of Figure 1, Continuum of Performances (Output) is intended to illustrate the range of performances and modes of expression that will result from differentiated learning experiences. When considering this range of performances, we should take various modes of expression into consideration as well as levels of ability. Graphic, dramatic, artistic, spatial, and other forms of expression should be considered in addition to traditional written and spoken expression styles. We should also take into consideration various levels of evaluation criteria when providing feedback related to student achievement and creative productivity. Traditional, norm-referenced evaluations (e.g., test scores, letter or number grades) may suffice when evaluating standard and advanced lesson learning activities, but creative/productive products need to be considered by using alternative modes of assessment [see, for example the Student Product Assessment Form (Reis & Renzulli, 1982)]. And the assessment of creative products should always take into consideration evaluation by *internal* criteria, (i.e., what

is important to the creator) (Bloom, 1985), as well as external criteria that focus on how others will evaluate one's work. Placing value on internal criteria helps students develop a sense of what *they* think is important and unique about their work. We would not, for example, foster the uniqueness of a writer such as Langston Hughes if his writing were evaluated with the external criteria typically used to evaluate standard prose.

The center section of Figure 1 (Process) represents many of the organizational methods for delivering services to students. An important consideration is that any and all services provided through various organizational approaches are integrated or interconnected so that an experience in one organizational setting can be capitalized upon by connecting it with options from another organizational component. Let us assume for a moment that one component of a comprehensive program offers general enrichment for all students in the regular classroom. Let us further assume that two or three students have had a remarkably positive reaction to, for example, a Type I (general exploratory) presentation and demonstration on robotics. We might want to form a special enrichment cluster for these students, or arrange for a mentorship experience, provide them with Internet access to explore robotics, or information on a national or international robotics competition. The most advanced students might subsequently be provided with a summer mentorship experience on a college campus or an internship at a robotics laboratory or manufacturing company.

Another example of integrated services deals with the most advanced students in a particular subject area. Let us assume that there are 8 or 10 primary age students across 2 or 3 grade levels who have demonstrated extremely high achievement in mathematics. Classroom teachers should ideally be providing curriculum compacting services for such students, and teachers should be using the time gained through compacting to provide within-class acceleration and mathematics enrichment opportunities. But equally important is the need to arrange a special grouping situation that allows these students to interact with their mathematically able peers on a regular basis. Both compacting and cluster grouping will be further enhanced if the classroom teachers and the person(s) providing instruction to the special group are in close communication about the respective activities in classroom and special group situations.

These few examples of integrated services from the continuum presented in Figure 1 are little more than common sense; and yet a good deal of the time and energy of previous decades has been devoted to arguments about the supremacy of one approach over all others. It is my hope that emphasis in the future be devoted to answering questions about how we escalate learning options for our most potentially able students within and among interconnected services rather than what is the one best approach to providing for the gifted. It is also my hope that there will be integration between and among the three main considerations of special programming—identification (Input), programming (Process), and output (Product). One of our biggest challenges for the future is to create logical and defensible relations between where and in which ways a young person is "located" on the continuum of potentials (identification) and how this information can guide us in making the most appropriate decisions for maximizing this person's assets (programming).

Relationship Between Gifted Programs and Total School Improvement Using the Schoolwide Enrichment Model

The SEM applies the know-how of gifted education to a systematic plan for total school improvement. Based on the belief that ***"a rising tide lifts all ships,"*** our goal is to increase challenge levels for all students and to promote an atmosphere of excellence and creativity in which the work of our highest performing students is appreciated and valued. This plan is ***not*** intended to replace existing services to students who are identified as gifted according to various state or local criteria. Rather, the model should be viewed as an umbrella under which many different types of enrichment and acceleration services are made available to targeted groups of students, as well as various subgroups of students within a given school or grade level. And the plan purposefully creates specific types of involvement for the entire faculty of a school to: (a) utilize the many and varied talents that exist on any faculty, (b) provide a vehicle for the development of the faculty's gifts and talents, and (c) minimize the "us-and-them" mentality that exists in many places where efforts are not made to create specific vehicles for bridge building between special and regular program personnel. The centerpiece of the model is the development of

differentiated learning experiences that take into consideration each student's abilities, interests, learning styles, and preferred styles of expression.

The overall mission of the SEM is to escalate the level and quality of learning experiences for any and all students capable of manifesting high levels of performance in any and all areas of the curriculum. As part of this mission, the model provides guidance for the development of challenging and appropriate educational opportunities for all young people, regardless of differences in demographic and economic backgrounds or differences in the rates, styles, and levels at which they learn. We believe that true equity can only be achieved when we acknowledge individual differences in the students we serve, and when we recognize that high-achieving students have as much right to accommodations in their schooling as do students who are experiencing learning difficulties. We also believe that equity is not the product of identical learning experiences for all students; rather, it is the product of a broad range of differentiated experiences that take into account each student's unique strengths.

The SEM is based on a broadened conception of giftedness (Renzulli, 1986, in print) that focuses on the many kinds of aptitudes, talents, and potentials for advanced learning and creative productivity that exist in all school populations. The goal is not to certify some students as "gifted" and others as "non-gifted," but to provide every student with the opportunities, resources, and encouragement necessary to achieve his or her maximum potential. In the SEM, the "language" of the model is that of *labeling the services, not the student*. Examples of labeled services are: a special mini-course for all fourth graders in how to access the Internet; an advanced placement course in chemistry; a multi-grade cluster group in mathematics for high-achieving students; a special enrichment cluster for all students interested in filmmaking; assigned time in a resource room to work on a research project; and curriculum compacting for students who have already mastered the material to be covered in an upcoming unit of study.

Young people display or have the potential to display their individuality and uniqueness in many ways. Some students learn at faster rates and higher levels of comprehension than others. Sometimes this learning may be in one or two subjects, and in other cases it may be across the entire curriculum. Similarly, some students are more

creative or artistic than others, and still others may demonstrate potentials for excellence in leadership, organizational skills, or interpersonal relations.

I believe that the many and diverse talent potentials of young people can be enhanced and further developed to high levels by participation in a range of options available in the continuum of services summarized in Figure 1 through the broad *continuum of services* described earlier. These specified activities might take place within regular classrooms on an individual or a small group basis, in special grouping arrangements that are purposefully formed because of advanced achievement levels, high levels of interest in particular subjects or problems, or strong motivation to pursue the development of a common product or service. Advanced opportunities can also take place outside the school in special internship or mentorship situations, in magnet schools or special-theme high schools, at cultural institutions, in summer programs or programs offered by colleges or universities, or anywhere else where highly capable and motivated youth can gain knowledge and experience that is not ordinarily available in the regular school program. I also believe that all regular curricular material should be subject to modification according to the learning rates and learning styles of individual students.

A total talent development model should give special consideration to schools that serve young people who may be at risk because of limited English proficiency, economically limited circumstances, attendance at poor-quality schools, or because they just learn in a different way from the majority. I believe that it is in these schools and among these student populations that extraordinary efforts, indeed heroic efforts, should be made to identify and cultivate the high-level talents of young people, talents that historically have gone unrecognized and underdeveloped.

The Three-Ring Conception of Giftedness

The system for identifying gifted and talented students described in this monograph is based on a broad range of research that has accumulated over the years on the characteristics of creative and productive individuals (Renzulli, 1986, in print). A strong research base is important for anyone who is considering the adoption of a practical approach to identification and programming. Although this monograph is geared toward practitioners, and therefore not weighed down with all the research related

to the Three-Ring Conception of Giftedness and the associated SEM, a summary of the research is included in Appendix A for the interested reader. Essentially, this research tells us that three interlocking clusters of ability characterize highly creative and productive people, these clusters being well-above average (though not necessarily superior) ability, task commitment, and creativity. A graphic representation of this conception is presented in Figure 2. The following description of behavioral manifestations of each cluster is a summary of the major concepts and conclusions emanating from the work of theorists and researchers who have examined these concepts:

Well Above Average Ability

General Ability

- High levels of abstract thinking, verbal and numerical reasoning, spatial relations, memory, and word fluency
- Adaptation to the shaping of novel situations encountered in the external environment
- The automatization of information processing; rapid, accurate, and selective retrieval of information

Specific Ability

- The application of various combinations of the above general abilities to one or more specialized areas of knowledge or areas of human performance (e.g., the arts, leadership, administration)
- The capacity for acquiring and making appropriate use of advanced amounts of formal knowledge, tacit knowledge, technique, logistics, and strategy in the pursuit of' particular problems or the manifestation of specialized areas of performance
- The capacity to sort out relevant and irrelevant information associated with a particular problem or areas of study or performance

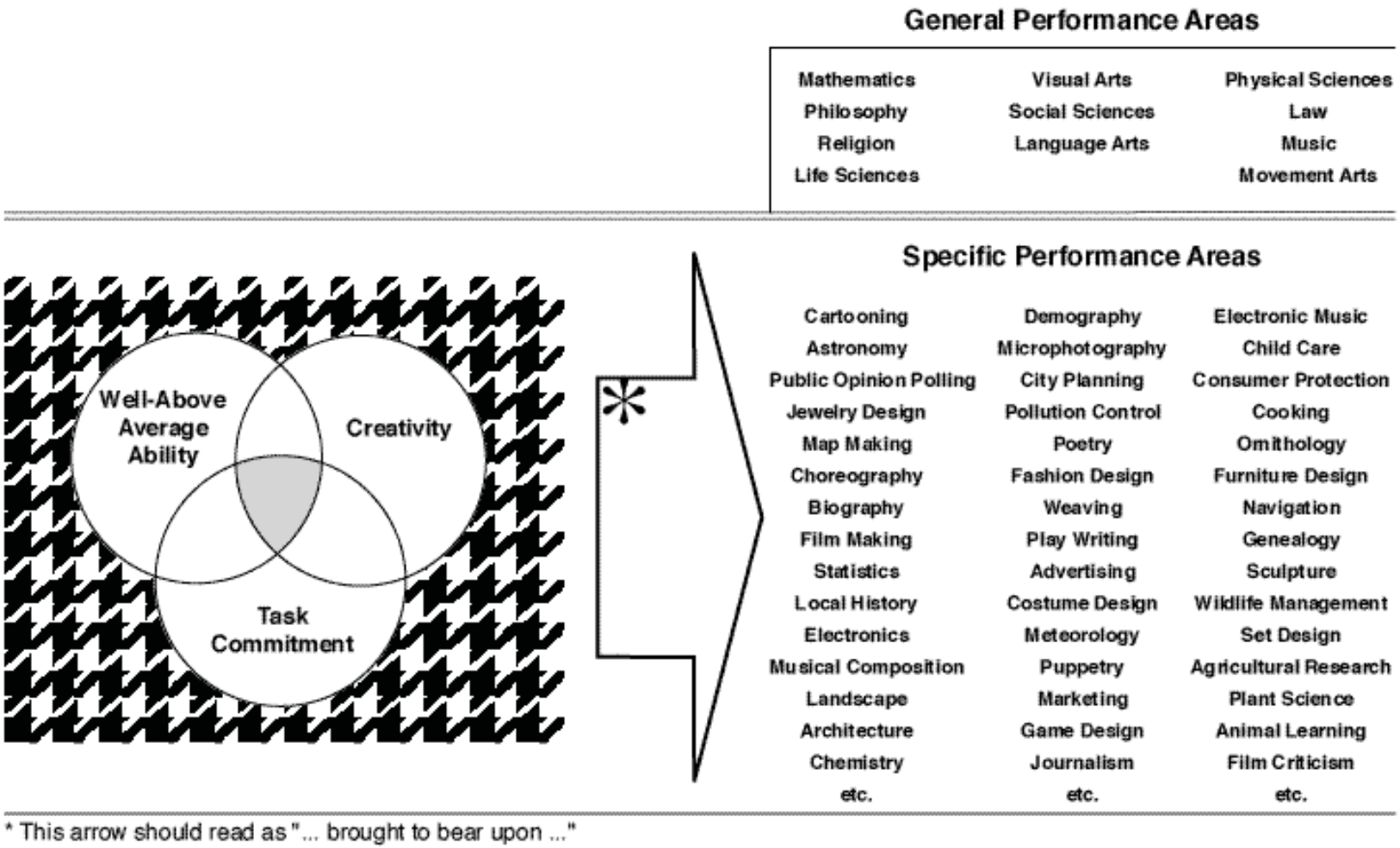

Figure 2. What makes giftedness?

Task Commitment

- The capacity for high levels of interest, enthusiasm, fascination, and involvement in a particular problem area of study, or form of human expression
- The capacity for perseverance, endurance, determination, hard work, and dedicated practice, self-confidence, a strong ego and a belief in one's ability to carry out important work, freedom from inferiority feelings, drive to achieve
- The ability to identify significant problems within specialized reason; the ability to tune in to major channels of communication and new developments within given fields
- The motivation to set high standards for one's work; to maintain an openness to self and external criticism; and to develop an aesthetic sense of taste, quality, and excellence about one's own work and the work of others

Creativity

- Fluency, flexibility, and originality of thought
- Openness to experience; receptive to that which is new and different (even irrational) in thoughts, actions, and products of oneself and others
- Curious, speculative, adventurous, and "mentally playful," willing to take risks in thought and action, even to the point of being uninhibited
- Sensitive to detail, aesthetic characteristics of ideas and things; willing to act on and react to external stimulation and one's own ideas and feelings

Status and Action Information

To understand the rationale and the practical implications (for identification) of the Three-Ring Conception of Giftedness, we must examine another major concept underlying the model. This concept is the important distinction between two types of information that allow us to examine and estimate human potential. A very important thing to keep in mind when considering the three clusters that define giftedness is that the

well-above average ability cluster represents a more enduring and easily measurable set of traits than the task commitment and creativity clusters. In the study of human abilities, the cognitive abilities largely represented in the well-above average ability cluster tend to remain constant over time. It is precisely for this reason that intelligence, achievement, and aptitude tests are considered to be the most reliable among all psychometric measures. These traits (i.e., well-above average ability) are measured by what I refer to as status information. Status information consists of test scores, previous grades or accomplishments, teacher ratings, and anything else we can "put down on paper" *beforehand* that tells us something about a person's potentials. Status information is undoubtedly the best way of identifying students with high levels of academic giftedness, and it is used in this identification system to select students who are well-above average ability in traditional academic performance.

Creativity and task commitment, on the other hand, are not always present or absent. The temporal, contextual, and situational nature of creativity and task commitment require that we look for these behaviors *within* situations where such behaviors are displayed and hopefully encouraged. Action information, which has been described in detail elsewhere (Renzulli, Reis, & Smith, 1981), can best be defined as the type of dynamic interactions that take place when a person becomes extremely interested in or excited about a particular topic, area of study, issue, idea, or event that takes place within the school or the non-school environment. These interactions occur when students come into contact with or are influenced by persons, concepts, ideas, creative opportunities, or particular segments of knowledge. They create the proverbial "Ahas" that may become triggers for subsequent involvement. The influence of the interaction may be relatively limited, or it may have a highly positive and extremely motivating effect on certain individuals. If the influence is strong enough and positive enough to promote further exploration and follow-up on the part of an individual or group of students that share a common interest, then we may say that a dynamic interaction has taken place.

Since task commitment and creativity are not always present in the same way as is, for example, math or reading achievement, we must be cautious about using these clusters of behaviors as gatekeepers for talent pool entrance. What may appear to be an

unmotivated, non-creative, or even shy child, or a child who is highly intelligent but underachieving in regular school performance, may turn out be a student who "turns on" as a result of a highly motivating experience. It is for this reason that two "safety valves" (discussed below) have been built into the identification system; and the programming model for which this system is designed includes a recommendation for a wide variety of interest development activities that are purposefully designed to "turn on" the creativity and task commitment clusters in our well-above average ability population.

By way of summary, what is perhaps the most salient aspect of the theory underlying this identification system is the *interaction* that takes between and among the three clusters of characteristics and the action that may result when the interacting clusters are brought to bear upon a particular problem situation. This interaction creates the conditions for creative productive giftedness to commence. The level of excellence and expertise to which a student may climb is a function of the strength and enduring power of the interaction and the quality of services and support that is provided by teachers or mentors. The role of teachers, mentors, and other support services in helping to bring the rings together is crucial, and in a certain sense, defines what should be the unique qualities of persons who work with high achieving and high potential students.

As is always the case with lists of traits such as those discussed above, there is an overlap among individual items, and an interaction between and among the general categories and the specific traits. It is important to point out that all the traits need not be present in any given individual or situation to produce a display of gifted behaviors. It is for this reason that the three ring conception of giftedness emphasizes the *interaction* among the clusters rather than any single cluster. It should also be emphasized that the above average ability cluster is a constant in the identification system described below. In other words, the well above average ability group represents the target population and the starting point for the identification process, and it will be students in this category that are selected through the use of test score and non-test criteria. Task commitment and creativity, on the other hand, are viewed as developmental goals of the special program. They emerge in certain in certain people (not all people), at certain times (not all the time), and under certain circumstances (not all circumstances). By providing above average ability students with appropriate experiences, the programming model (Renzulli,

1977) for which this identification system was designed serves the purpose of promoting creativity and task commitment, and in "bringing the rings together" to promote the development of gifted behaviors.

One final point needs to be made about interpreting the three-ring conception of giftedness. Even in a population of well-above ability students, not everyone can "get their rings together!" There are many high achievers who will progress rapidly through a regular or advanced curriculum, and special programs should do everything possible to provide the acceleration vehicles that accommodate this type of advanced ability. And some students will get their rings together only in particular areas that have special fascination for them. The development of creative productive giftedness should, however, be as important a goal of special programs as is advanced academic achievement—perhaps an even more important goal. This is the type of giftedness that today's most competitive colleges are seeking in their applicants and the kinds of traits that are most valued at the highest levels of the academic and corporate worlds. Implicit in any efforts to define and identify gifted youth is the assumption that we will "do something" to provide various types of specialized learning experiences that show promise of promoting the development of characteristics implicit in the definition. In other words, the *why* question supersedes the *who* and the *how* questions. Although there are two generally accepted purposes for providing special education for the gifted, these two purposes in combination give rise to a third purpose that is intimately related to the definition question.

The first purpose of gifted education is to provide young people with maximum opportunities for self-fulfillment through the development and expression of one or a combination of performance areas where superior potential may be present. This purpose is consistent with the general goals of education in a democracy and the need (indeed legal right) of every student to be challenged to the level of his or her potential. Another reason students deserve challenge is that they develop a sense of inner strength and a view of their own abilities as malleable in this way (Dweck & London, 2004). Students who are chronically underchallenged have little confidence that they could face real challenges successfully and tend to limit themselves to situations in which they can perform well, or be instant experts. And if they do meet with a lack of success, they may crumble.

The second purpose is to increase society's supply of persons who will help to solve the problems of contemporary civilization by becoming producers of knowledge and art rather than mere consumers of existing information. Although there may be some arguments for and against both of the above purposes, most people would agree that goals related to self-fulfillment and/or societal contributions are generally consistent with democratic philosophies of education. What is even more important is that the two goals are highly interactive and mutually supportive of each other. In other words, the self-satisfying work of scientists, artists, and leaders in all walks of life usually produces results that might be valuable contributions to society. Carrying this point one step further, we might even conclude that appropriate kinds of learning experiences can and should be engineered to achieve the twofold goals described above. Keeping in mind the interaction of these two goals, and the priority status of the self-fulfillment goal, it is safe to conclude that supplementary investments of public funds and systematic effort for highly able youth should be expected to produce at least some results geared toward the public good. If, as Gowan (1978) has pointed out, the purpose of gifted programs is to increase the size of society's reservoir of potentially creative and productive adults, then the argument for gifted education programs that focus on creative productivity (in addition to academic giftedness) is a very simple one. If we agree with the goals of gifted education set here, and if we believe that our programs should produce the next generation of leaders, problem solvers, and persons who will make important contributions to the arts and sciences, then does it not make good sense to model special programs after the *modus operandi* of these persons?

This is especially true because research (as described later in the monograph) tells us that the most academically advanced students are not necessarily those persons who go on to make important contributions in the realm of creative productivity. And in this day and age, when knowledge is expanding at almost geometric proportions, it would seem wise to consider a model that focuses on how our most able students access and make use of information rather than merely on how they accumulate and store it.

This conception of giftedness is compatible with more recent examinations of intelligence such as Gardner's Theory of Multiple Intelligences and Sternberg's Theory of Successful Intelligence. Gardner (1993) describes his theory as a pluralistic view of

mind, recognizing many different and discrete facets of cognition. It acknowledges that people have different cognitive strengths and contrasting cognitive styles. Initially, he described seven intelligences in an effort to organize all the information he had gained from studying a group of people whose cognitive profiles were extremely difficult to explain by a unitary view of intelligence. These intelligences are: linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal intelligences. He has subsequently added an eighth: naturalistic intelligence. The first two, linguistic and mathematical-logical intelligences, are usually associated with people who do well in school and on tests. How well they do after they leave school, however, depends on the extent to which they possess and use the other intelligences, according to Gardner (1993).

Sternberg's theory (1999, 2000) defines intelligence as the ability to achieve success in life in terms of one's personal standards within one's sociocultural context. A person's ability to achieve success depends on his or her ability to capitalize on strengths and compensate for weaknesses. By balancing analytical, creative, and practical skills, individuals learn how to adapt to, shape, and select the environments in which they will apply their skills. Although Sternberg's work is a theory of intelligence rather than giftedness, the interaction and application to specific performance areas that he proposes is not unlike the conception of giftedness presented in Figure 2.

PART II: The Identification Model—The How Question

In the sections that follow, I will outline the specific steps of an identification system that is designed to translate the Three-Ring Conception of Giftedness into a practical set of procedures for selecting students for special programs. The key feature of this identification system is the formation of a Talent Pool (described below) that includes students who have been identified by both test and non-test information (see Figure 3). The system respects and includes students who earn high scores on traditional measures of cognitive ability, but a major variation from traditional identification practices is that this system "leaves some room" in the Talent Pool for students who show their potentials in other ways.

The Talent Pool as a Vehicle for Targeting Certain Students

The focal point of this identification system is the creation of a Talent Pool of students that will serve as the major (but not the only) target group for participation in a wide variety of supplementary services. The goals of this identification system, as it relates to the Three-Ring Conception of Giftedness are threefold:

1. To develop creativity and/or task commitment in students in the Talent Pool who arrive there by test scores as well as students identified by alternative means of identification.
2. To provide learning experiences and support systems that promote the interaction of creativity, task commitment, and above average ability (i.e., bring the "rings" together).
3. To provide opportunities, resources, and encouragement for the development and application of gifted behaviors.

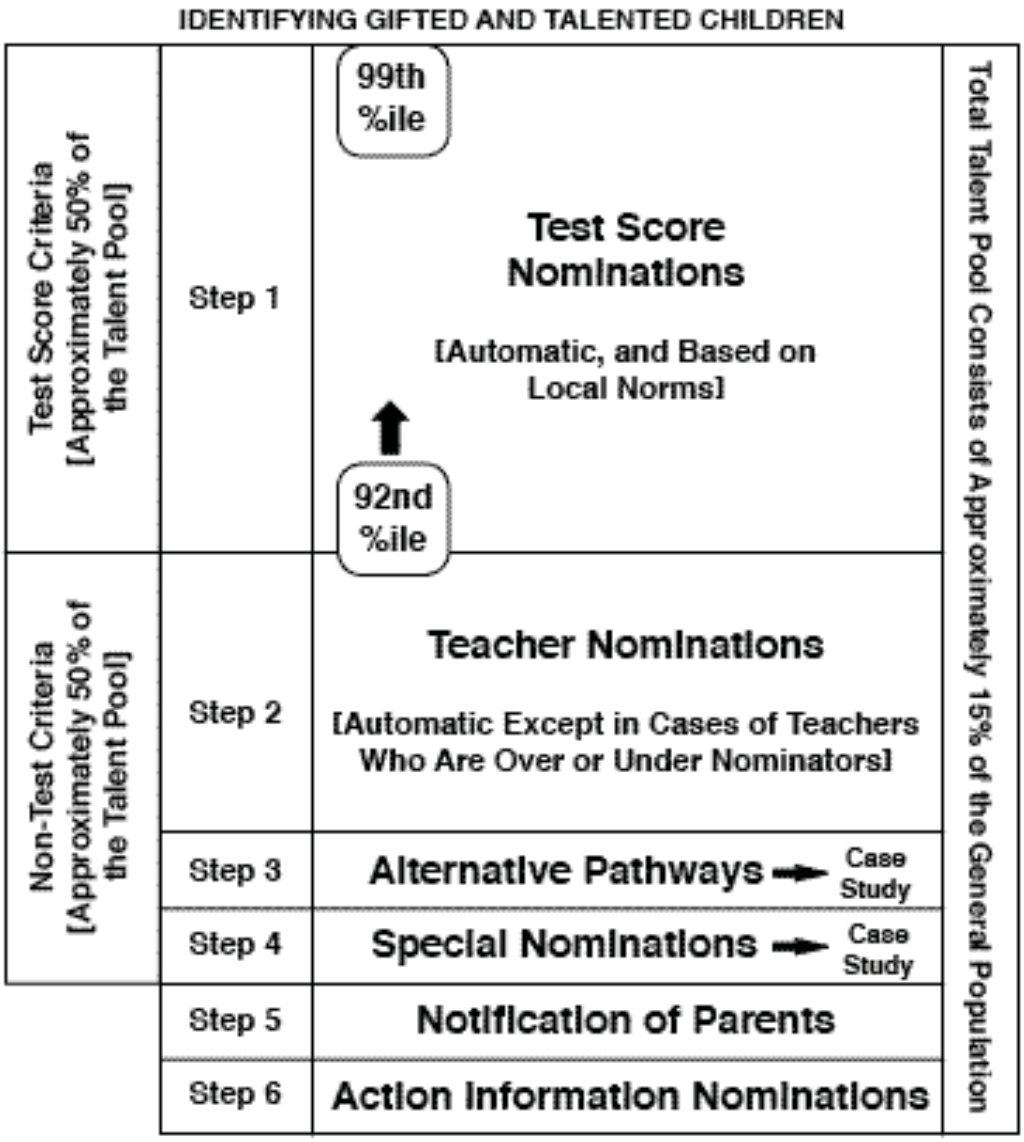

Figure 3. The Renzulli identification system.

Although success in making this system work is dependent on a number of factors, administrative leadership and a well trained gifted education specialist to oversee both the identification process and the delivery of services through the integrated continuum of services is essential. The best laid plans for any program will not achieve their desired goals without knowledgeable and committed leadership; and therefore it is recommended that careful attention be given to the selection and training of the person in each school who will have oversight responsibilities.

It is also important for all students to understand both the goals of the program (academic challenge and creative productivity) and the identification process—and what it means to be in the Talent Pool. The message to students should be as follows:

> Being in the Talent Pool means that you are a ***targeted*** student—targeted in the sense that you have displayed, for example, high achievement as shown by school grades in one or more areas, achievement test scores, high ratings by teachers in one or more areas [Learning, Motivation, Creativity], or that you have displayed superior performance or development on one or more alternative criteria that the school has chosen to use in the identification process [Parent, Peer, or Product ratings—***if*** your school chooses to use these types of ratings]. You are in the Talent Pool because of particular strengths you have displayed in your regular school work, extracurricular activities, or in some other area where you have shown high motivation, creative accomplishments, strong leadership abilities, or a talent in one or more of your special areas of interest. Remember, the purpose of the program is to *develop* your giftedness and performance in areas where you have particular interests and strengths.

We try to avoid saying that Talent Pool students are "the gifted," or "the highly gifted," or "the truly gifted," or any other term that uses the "G Word." Rather, we describe them in terms of particular strengths that brought them to our attention for Talent Pool membership. We ***do*** use the "G Word" (as an adjective rather than a noun) to describe the types of gifted behaviors we are attempting to develop in students (e.g., "a gifted writer of short stories . . . .") and as descriptions of the services provided by the program. Thus, for example, curriculum compacting in mathematics or participation in a robotics enrichment cluster are examples of labeled services designed to develop gifts and talents in particular strength areas.

Before listing the steps involved in this identification system, five important considerations will be discussed.

1. Talent Pool Size. Talent Pools will vary in any given school depending upon the general nature of the total student body. In schools with unusually large numbers of

traditionally high achieving students, it is conceivable that Talent Pools will extend beyond the 15% level that is ordinarily recommended in schools that reflect the achievement profiles of the general population. Even in schools where achievement levels are below national norms, an upper level group of students still exists who require services above and beyond those, which are provided in the regular curriculum for the majority of the school population. Some of our most successful programs have been in urban schools that serve disadvantaged and bilingual youth; and even though these schools were below national norms, a Talent Pool of approximately 15% of high potential students needing supplementary services was still identified. Talent Pool size is also a function of the availability of resources (both human and material), and the extent to which the general faculty is willing (a) to make modifications in the regular curriculum for above average ability students, (b) to participate in various kinds of enrichment and mentoring activities, and (c) to work cooperatively with any and all personnel who may have special program assignments.

2. The Importance of Teacher Training. Since teacher nomination plays an important role in this identification system, a second consideration is the extent of orientation and training that teachers have had about both the program and procedures for nominating students. In this regard, we recommend the use of a training activity that is designed to orient teachers to the behavioral characteristics of superior students (Renzulli et al., 2002). A sample training activity for the teacher rating scales typically used in this identification system is included in Appendix B.

3. Relationship Between Identification and Programming Model (Discussed at length in Part I). A third consideration is, of course, the type of program for which students are being identified. The identification system that follows is based on models that combine both enrichment and acceleration, whether or not they are carried out in self-contained or pullout programs, or full-time classes for identified students. Regardless of the type of organizational model used, it is also recommended that a strong component of curriculum compacting (Renzulli, Smith, & Reis, 1982) be a part of the services offered Talent Pool students.

4. Services to Non-talent Pool Students. It is important to emphasize that although the Talent Pool does target a designated number or percentage of the students,

all students will have access to general enrichment opportunities, often in group situations along with Talent Pool students (e.g., in interest-based enrichment clusters). Those students who respond in highly positive and creative ways to general enrichment, regardless of Talent Pool membership, should have opportunities for follow-up depending upon the availability of resources.

5. Summarizing Information for Decision Making. Identification procedures typically produce "information overload," and therefore confusion about what all the information means in the decision making process. To economize on time and effort, this identification system recommends that all of the relevant information in each student's folder be summarized on a *single* cover sheet for members of the Review and Selection Team as they go about the review process. A copy of this form is included in Appendix C, and schools should feel free to modify this form to accommodate variations in the review process that are particular to their adaptation of this identification system. Notes and comments should be attached to the form and cross-referenced with other items in the student's folder.

Determining the Size of the Talent Pool

Determination of Talent Pool size will vary from school to school depending on school demographics, resources, whether or not there are designated teachers to work in the enrichment program, teacher training for general faculty as well as specialists, willingness of the general faculty to participate in various enrichment program services, and administrative commitment to support a variety of talent development options.

Another key issue in determining Talent Pool size is estimating the impact of services so that they will show "visibility-of-effect." Visibility-of-Effect can be estimated on a hypothetical scale ranging from Elegant to Imperceptible. The numbers of students receiving direct and indirect services, the number and quality of student outcomes from each service, and feedback from students, parents, teachers, and administrators are all sources of information for estimating visibility-of-effect. Specific approaches for examining quality and impact can be found in the literature on evaluating programs for the gifted and talented.

Direct and Indirect Services in a Gifted Education Programs

Direct Services to Students Face-To-Face Activities of Special Program Personnel	Indirect Services to Students Services provided Through Arrangements with *Other* Persons and Organizations
• **Teaching:** **Special Classes, Honors, and AP Courses, Seminars** **Resource Room** **Other**	• **Providing teachers with materials to use for differentiated activities with targeted groups or individuals.** • **Training teachers, coaching, and monitoring curriculum compacting for high achieving students.**
• **Individual and small group teaching and mentoring.**	• **Coordinating internships, mentorships with individual faculty or community resource persons or agencies.**
• **Direct coaching and supervision of individual small group projects that are extensions of regular classes, enrichment clusters, or non-school initiated interests.**	• **Organizing programs such as Odyssey of the Mind, Future Solving, Math League, etc.**
• **Counseling and referring students about issues such as multipotentiality, underachievement, and other special needs.**	• **Arranging for students to attend summer programs, college courses, on-line courses, and other special talent development opportunities.**

Elegant . . . . . Imperceptible

Visibility-of-Effect can be estimated on a hypothetical scale ranging from Elegant to Imperceptible. The numbers of students receiving direct and indirect services, the number and quality of student outcomes from each service, and feedback from students, parents, teachers, and administrators are all sources of information for estimating visibility-of-effect. Specific approaches for examining quality and impact can be found in the literature on evaluating programs for the gifted and talented.

Figure 4. Direct and indirect services in gifted education programs.

Spreading resources too thin to serve more students may result in services that don't "show up" when viewed from an evaluative perspective. For example, a questionnaire to parents evaluating the impact of the program on their children may yield unfavorable results if the program lacks a critical mass of services upon which parents can make a judgment. A good way to think about the visibility-of-effect issue is to examine the direct and indirect services listed in Figure 4. Talent Pool size can be adjusted by examining the range of services, the number of students participating in the full range of services, the intensity and/or frequency of the experiences, and the quality of services so far as student growth and satisfaction with the services is concerned. A program goal should be to increase the range of services as the program matures and to increase the impact of services on a hypothetical scale ranging from imperceptible to elegant. So, for example, if the program implements a National History Day component, and if student participation expands and produces winning teams, we can document both extent and impact of participation. Visibility-of-effect is one of the best ways to insure continued support for special programs.

The Issue of Norms

This identification system differs from most others because it relies on local rather than national norms. As we all know, school populations differ widely along demographic and socioeconomic (SES) lines. The quality of teaching and the level of challenge in a high SES school are usually at much higher levels than schools that serve low-income students. In one school in which I worked, for example, the mean IQ (national norms) was 121. All students participated in a much more advanced curriculum than typically found in most schools, and yet, there were students in this school who clearly needed opportunities that were above and beyond even the advanced level work that typified the regular curriculum of the school.

I have also worked in low SES schools where the majority of students received a regular curriculum that was below what would be considered average for a particular grade level. There were, however, students in this school who were clearly in need of more advanced challenges and opportunities. Only a few would have qualified for the gifted program in the high SES school, but they had the same needs for a more

challenging learning environment as did students in the high achieving school. By receiving these opportunities, the low SES students were able to maximize their potential to the extent that, in this particular urban school district, all students who eventually gained entrance to 4-year colleges were products of the gifted program. These students would not have had opportunities for differentiated learning experiences if we based selection for special services solely on national norms. But when viewed in reference to their own peer group, and when we considered their need for challenging opportunities that differed from the regular curriculum of their own school, then we can argue that we are providing the same equality of opportunity as that which was provided in the high SES school. If we view gifted programs as places that serve students who are in need or opportunities, resources, and encouragement that are above and beyond *their own* regular curriculum, we will give many more young people a fair chance to develop their potential.

What happens when a school serves populations that include *both* high and low SES students? In such cases, it is essential to make certain that the strengths that bring students to our attention serve as the major indicators of the kinds of services we will provide. Placing students with lower skills in the same advanced math class as students who have excelled in the regular math curriculum, for example, will lower the level of challenge for all students and cause the lower students to become frustrated. But if we design experiences for the lower achieving students that capitalize on the strengths that were recognized in the identification process, and if we use these strengths as stepping stones for the further development of their potentials, then we will truly be respecting the concept of differentiation according to individual needs, and we will be respecting the wisdom conveyed in the Harlan Cleveland quote and the John F. Kennedy quote at the beginning of this monograph. We will also overcome what has been the main source of criticism about inequity that has plagued gifted programs in recent years. As indicated above, all identification systems are a compromise that must take into consideration the social, cultural, and political issues that guide education in a democratic society.

For purpose of demonstration, the example that follows will be based on the formation of a 15% Talent Pool. Simply adjusting the figures used in this example will enable individual schools to form larger or smaller Talent Pools.

Steps in Forming the Talent Pool

Review and Selection Team. A team of school personnel including teacher(s) of the gifted, classroom teachers, administrators, and pupil personnel specialists (e.g., counselor, school psychologist, social worker) should be responsible for managing the Talent Pool selection process. Any and all information related to the selection process should be made available to all members of the team and a case study approach should be used to review each set of student records. There may be occasions when it will be necessary to seek supplementary information about a student and to request that non-team members meet with the team to provide supplementary information. It is important for all persons on the team (and parents and the general faculty as well) to understand that ***instruments only provide information but people make decisions!*** A multi-criteria approach means that simply setting arbitrary cut-off points or adding up points from various instruments cannot make decisions. Informed human judgment is crucial for an identification system that: (a) seeks to develop diverse talent potentials in diverse segments of the school population; and (b) it is an identification system that is geared toward services that place a premium on developing creative productivity rather than merely advanced lesson learning.

Step 1: Academic Performance and Test Score Nominations

Academic performance based on end-of-year grades for the past 2 years and the most recent total verbal and total numerical scores from district wide achievement tests are the first two criteria used in forming the Talent Pool. In our 15% talent pool example, students who score at or above the 92nd percentile on either verbal or numerical sections of the achievement test should automatically be placed in the Talent Pool. In schools that serve diverse populations it is also recommended that a non-verbal cognitive ability test be used in addition to standard achievement tests or aptitude tests.

A very big caution, however, is in order here! There is a good deal of controversy about the effectiveness of non-verbal tests for increasing the proportion of minority students in programs for the gifted (Lohman, 2005; Naglieri & Ford, 2003, 2005). Until more definitive studies are conducted, we should treat non-verbal test scores as another piece of information in the overall decision-making process rather than a substitute for

regular cognitive ability tests and school performance. Lohman has argued forcefully that:

> . . . (1) admission to programs for the gifted should be guided by evidence of aptitude for the particular types of advanced instruction that can be offered by schools; (2) the primary aptitudes for development of academic competence are current knowledge and skill in a domain, the ability to reason in the symbol systems used to communicate new knowledge in the domain, interest in the domain, and persistence; (3) inferences about aptitude are most defensible when made by comparing a student's behavior to the behavior of other students who have had similar opportunities to acquire the skills measured by the aptitude tests; however, (4) educational programming and placement should be based primarily on evidence of current accomplishment. (Lohman, in press, p. 1)

Lohman further argues that comparisons should only be made between students who share similar learning opportunities or background characteristics. It is for this reason that this identification system recommends the use of **local norms** (i.e., calculated by school and grade level). Our goal is to identify the most promising students in *each* school and at *each* grade level who are the best candidates for supplementary services. Since we are not admitting students from other school districts or states, it does not make sense to engage in national comparisons! The use of national norms invariably results in the under representation of minorities and students whose potentials may be manifested in non-traditional ways.

Students who score below the 92nd percentile, but who have demonstrated "straight A" academic performance in their end-of-year grades should also be considered unless the selection team notes unusual discrepancies between test scores and grades. There may be cases where high scoring students do not have high grades due to underachievement or personal or social issues. In such cases, before determining which services are appropriate, additional ***individual*** assessment should be carried out to determine if factors such as underachievement, a learning disability, personal or family problems, or difficulty with timed group tests is giving an inaccurate picture of the

student's potential. Individual intelligence tests administered by a qualified examiner are needed when discrepancy information is found in the types of assessment mentioned above. This approach will help to control the expensive and time-consuming use of individualized testing, thereby meeting the economy goal of this identification system.

Scores from the most recent regularly administered standardized achievement or aptitude test can be used for this purpose; however, we recommend that admission to the Talent Pool be granted on the basis of either a high verbal *or* a high mathematics score. This approach will enable students who are high in verbal or mathematical ability (but not necessarily both) to gain admission. Programs that focus on special talent areas such as music, art, drama, or leadership should use non-test criteria (see Step 2) as major indicators of above average ability in a particular talent area. In a similar fashion, whenever test scores are not available, or we have some question as to their validity, the non-test criteria recommended in the following steps should be used. This approach is especially important when considering primary age students, disadvantaged populations, or culturally different groups.

The conclusion of Step 1 should be a list of names with an approximately equivalent number of students selected from each grade level. Through team discussions and negotiations, this list should represent approximately one-half of the predetermined number of "slots" in the Talent Pool.

Step 2: Teacher Nominations

If we were using nothing but test scores to identify a 15% Talent Pool, the task would be ever so simple! Any child who scores above the 85th percentile (using local norms) would be a candidate. In this identification system, however, we have made a commitment to "leave some room" in the Talent Pool for students whose potentials may not be reflected in standardized tests. This approach guarantees that all traditionally bright youngsters will automatically be selected, and they will account for approximately 50% of our Talent Pool. This process also guarantees admission to bright underachievers.

To minimize paperwork on the parts of classroom teachers, the first activity in Step 2 is to provide classroom teachers with a list of the names of students from their

class who have already been selected in Step 1. After being provided with a brief training activity on the use of teacher rating forms (see sample in Appendix B), teachers are asked to complete ratings on *other* students (i.e., other than those already selected in Step 1) whom they might consider for admission to the Talent Pool. In other words, teachers should be informed about all students who have gained entrance through test score nominations so that they will not have to complete ratings for students who have already been admitted. Step 2 allows teachers to nominate students who display characteristics that are not easily determined by tests (e.g., high levels of creativity, task commitment, unusual interests, talents, or special areas of superior performance of 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. The scales are now available in an online version, which allows for ease of rating, and more importantly (because this system recommends the use of local norms), the online version automatically calculates local norms as well as individual student profiles. The online version of SRBCSS can be accessed at **www.creativelearningpress.com/webscales** .

Most schools use the three main scales corresponding to the Three-Ring Conception of Giftedness (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 categorical programs such a Future Problem Solving, Web Quest, or MathCounts. In such cases one or a combination of the following SRBCSS scales might be used: Leadership, Reading, Mathematics, Science, Technology, Music, Art, Drama, Communication: Precision, Communication: Expressive, and Planning. Figure 5 shows examples of how these rating scales may be used to nominate students for special topic programs **by matching program goals, and targeted skills to relevant rating scales.** 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. *In other words, scores from the scales should never be added together or averaged.*

Program	Program Goals	Rating Scales to Use
Future Problem Solving (FPS)	• Increase creative thinking abilities • Improve analytical thinking skills • Stimulate an interactive interest in the future • Extend perceptions of the real world • Explore complex societal issues • Refine communication skills—written, verbal, and technical • Promote research • Integrate problem-solving into the curriculum • Encourage cooperative, responsible group membership • Offer authentic assessment	• Creativity • Motivation • Leadership
WebQuest	To develop the following skills: • Comparing • Classifying • Inductive Thinking • Deductive Thinking • Analyzing errors • Constructing support • Abstraction • Analyzing perspectives	• Technology • Planning • Learning • Reading
MathCounts http://mathcounts.org	Mathcounts competitions aim to: • challenge students' math skills, • develop their self-confidence, • reward them for their achievements.	• Mathematics • Motivation • Communication: Precision
National History Day (NHD)	NHD is a year-long education program that engages students in Grades 6-12 in the process of discovery and interpretation of historical topics. Students combine creativity and scholarship, produce dramatic performances, imaginative exhibits, multimedia documentaries, and research papers based on research related to an annual theme.	• Learning • Motivation • Creativity • Planning • Communication: Precision • Communication: Expressive

Figure 5. Examples of how rating scales are used to nominate students for programs that focus on specific talent development areas.

With the exception of teachers who are over-nominators or under-nominators, nominations from teachers who have received training in this process are accepted into the Talent Pool on a par value with test score nominations. We do not refer to students nominated by test scores as the "truly gifted," and the students nominated by teachers as the moderately or potentially gifted. Nor do we make any distinctions in the opportunities, resources, or services provided, other than the normal individualization that should be a part of any program that attempts to meet unique needs and potentials. Thus, for example, if a student gains entrance on the basis of teacher nomination because he or she has shown advanced potential for creative writing, we would not expect this student to compete on an equal basis in an advanced math class with a student who scored at or above the 92nd percentile on a math test. Nor should we arrange program experiences that would place the student with talents in creative writing in an advanced math cluster group. **Special programs should first and foremost respect and reflect the individual characteristics that brought students to our attention in the first place.**

In cases of teachers who are over-nominators, the selection team should request that teachers rank order their nominations for review (i.e., place the scales in a pile from high to low) and return them to the selection team. Procedures for dealing with under-nominators or non-nominators will be described in Step 4.

Step 3: Alternative Pathways

Most schools using this identification system make use of test scores and teacher nominations, and in most cases, the majority of the Talent Pool will come from these two criteria.

Alternative pathways are optional, locally determined by individual schools, and pursued in varying degrees by individual school districts. Alternative pathways generally consist of parent nominations, peer nominations, self-nominations, specialized tests (e.g., creative writing, spatial or mechanical ability), product evaluations, and virtually any other procedure that might lead to *initial* consideration by a selection team. A large number of instruments for gathering alternative pathway information are available in the identification literature. A good source of information about traditional testing

instruments can be found in *Assessment of Children: Cognitive Applications* (Sattler, 2001); and some reviews of instruments specifically related to gifted programs can be found in *Instruments Used in the Identification of Gifted and talented Students* (Callahan, Hunsaker, Adams, Moore, & Bland, 1995). A few examples of instruments that can be used for parent, peer, and product evaluation can be found in Appendix D. Note the language of the cover letter for the parent rating form. It is written in a way that seeks parent input about particular strength areas, but it does not place the parent in the awkward position of favoring or jeopardizing their child's designation as a "gifted" student. It is, of course, important and ethically responsible for teachers to make use of the findings resulting from the use of this instrument (described in the cover letter), whether or not the child is placed in the Talent Pool.

There are "touchy issues" that needs to be addressed whenever we open the door to parent input. Objectivity is always a concern when parents are asked to rate their own child, and it is for this reason that the parent rating scale mentioned above is not characterized as a "gifted instrument." And examples of representative behaviors associated with each scale item are included so that we can avoid, at least to some extent, the surplus interpretation that parents may bring to the ratings.

There are even larger issues related to parent input, the main one being school districts that allow scores obtained through private testing to be submitted for consideration in the identification process. Assuming that reputable psychologists are administering the tests,[1] there is the issue of parents who are wealthy enough to afford private testing; and even in cases where private testing may be underwritten by the school district, there is the issue of parent savvy—simply knowing that the service is available and making the arrangements to have one's child tested. Since private testing is frequently a function of program history that has become accepted tradition, or even school board policy, the only way we can guard against unfair advantage is to make certain that (a) all parents are made aware of and have access to equivalent testing offered by or supported by the school; (b) that inferences about test results are only made by comparing a student's behavior to the behavior of other students who have had similar

[1] I am reminded of a newspaper article that made reference to a local psychologist who was popularly known as "Dr. 130!" For the right fee, he would automatically make a child gifted by giving him or her an IQ if 130 or higher.

opportunities to acquire the skills measured by the test; and (c) that no single piece of identification information be used as the sole gatekeeper for admission decisions. The major difference between alternative pathways on one hand (Step 3), and test score and teacher nomination on the other (Steps 1 and 2), is that alternative pathways are not automatic. In other words, students nominated through one or more alternative pathways will become the subjects of a case study by the Review and Selection Team, after which a selection decision will be made. In most cases the team carries out a case study that includes examination of all previous school records, interviews with students, teachers, and parents, and the administration of individual assessments (as needed) that may be recommended by the team. In some cases, students recommended on the basis of one or more alternative pathways can be placed in the Talent Pool on a trial basis.

A local planning committee or the Review and Selection Team should make decisions about which alternative pathways might be used. Some consideration should be given to variations in grade level. For example, self-nomination is more appropriate for students who may be considering advanced classes at the secondary level. Peer nomination is particularly useful for program services that focus on particular talent areas such as technology, music, or drama, and students themselves are sometimes better at revealing which students have natural or "street smart" leadership potential.

Step 4: Special Nominations (Safety Valve No. 1)

Special nominations represent the first of two "safety valves" in this identification system. This procedure involves preparing grade level lists of all students who have been nominated through one of the procedures in Steps 1 through 3 and circulating these lists to all previous year teachers. The directions sent with the lists are as follow:

> *These lists contain the names of all students who have been nominated for the Talent Pool for the forthcoming year. Will you please review the lists and send us the names of any students you have previously taught that are not on the lists, but that you think should be considered for Talent Pool membership?*

Teachers should *not* be required to give a reason for their special nominations at this time. Busy schedules may discourage teachers from preparing justifications "on the spot." A later meeting or request that teachers complete a set of rating scales will help to insure that invitations for special nominations are not "blown off" by busy teachers.

Step 4 allows previous year teachers to nominate students who have not been recommended by their present teacher, and it also allows gifted education teachers to make recommendations based on their own previous experience with students who have already been in the Talent Pool, or students they may have encountered as part of enrichment experiences that have been offered in regular classrooms. This process also allows special topic teachers (e.g., music, art, physical education) or teachers who have had responsibilities for special programs (e.g., Future Problem Solving, National History Day) to have opportunities for input into the nomination process. These teachers often see students in non-traditional learning environments, and therefore they are excellent talent scouts for a variety of creative, practical, and motivational strengths. Faculty orientation about such opportunities is, of course, very important for gaining such input.

The Special Nomination step allows for a final review of the total school population and circumvents the opinions of present year teachers who may not have an appreciation for the abilities, styles, or even the personality of a particular student. This one last "sweep" through the population also helps to pick up students that may have "turned-off" to school or developed patterns of underachievement as a result of personal or family problems. This step also helps to overcome the general biases of any given teacher who is an under-nominator or a non-nominator. As with the case of alternative pathways, special nominations are not automatic. Rather, a case study is carried out and the final decision rests with the selection team.

Step 5: Notification and Orientation of Parents

A letter of notification and a comprehensive description of the program should be forwarded to the parents of all Talent Pool students indicating that their youngster has been placed in the Talent Pool for the year. The letter does not indicate that a child has been certified as "gifted," but rather explains the nature of the program and extends an invitation to parents for an orientation meeting. At this meeting a description of the

Three-Ring Conception of Giftedness should be provided, as well as an explanation of the differences between "lesson learning giftedness" and "creative productive giftedness." A chart that points out the goals and skills associated with developing these two dimensions of giftedness can be found in Appendix E. This chart can be used with parents and students as well as professional staff members to give then a quick overview of the goals and skills that the program is attempting to develop, and it helps them understand in more practical terms the distinction between academic giftedness and creative productive giftedness. It is important to emphasize that both types of giftedness are important and will be addressed in the program. What should also be emphasized is that creative productive giftedness is the type that represents the way that the larger society has recognized persons of significant accomplishment. [Note: For a more detailed description of the rationale for emphasizing the inclusion of creative productive giftedness in special programs see Renzulli (1986) and **www.gifted.uconn.edu/sem/semart13.html** .]

The meeting with parents should also provide an explanation of all program policies, procedures, and activities. Parents are informed about how admission to the Talent Pool is determined; that selection is carried out on an annual basis, and that changes in Talent Pool membership might take place during the year as a result of evaluations of student participation and progress. Parents are also invited to make individual appointments whenever they feel additional information about the program in general, or their own child, is required. A similar orientation session should be provided for students, with emphasis once again being placed on the services and activities being provided. Students are not told that they are "the gifted," but through a discussion of the Three-Ring Conception and the procedures for developing general and specific potentials, they come to understand that the development of gifted behaviors is a program goal as well as part of their own responsibility.

Step 6: Action Information Nominations (Safety Valve No. 2)

In spite of our best efforts, this system will occasionally overlook highly creative students or students talented in a specific area, who, for one reason or another, are not selected (but should have been) for Talent Pool membership. To help overcome this

problem, a process called action information nomination is used and all teachers are provided with an orientation related to spotting unusually favorable "turn-ons" in the regular curriculum.

Action information can best be defined as the dynamic interactions that occur when a student becomes extremely interested in or excited about a particular topic, area of study, issue, idea, or event that takes place in school or the non-school environment. It is derived from the concept of performance-based assessment, and it serves as the second safety valve in this identification system. The transmission of an Action Information Message (see Appendix F) does not mean that a student will automatically be placed in the Talent Pool. It does, however, serve as the basis for a careful review of the situation to determine if any types of special services are warranted. Action information messages are also used within Talent Pool settings (i.e., pull-out groups, advanced classes, cluster groups) to make determinations about the pursuit of individual or small group investigations (Type III Enrichment in the Triad Model). In order for the Special Nomination process to work effectively, all school personnel should be provided with an orientation to "talent spotting" situations where the initiation and transmission of an Action Information Message may be warranted. Transmission to the Review and Selection Team or to someone in the school and/or community that might provide guidance, serve as a mentor, or help the student to follow up in his or her area of interest are obligations that accompany the use of Action Information Messages in our effort to leave no stone unturned in helping young people develop their potential talents.

In programs following the Schoolwide Enrichment Model (Renzulli & Reis, 1997), we also provide a wide variety of in-class enrichment experiences that might result in recommendations for special services through the Action Information process. This process is facilitated through the use of a teacher training activity that can be used to orient teachers in the use of the Action Information Message (Renzulli & Reis, 1997).

Summary

The real difficulty in changing the course of any enterprise lies not in developing new ideas but escaping old ones.

John Maynard Keynes

In most identification systems that follow the traditional screening-plus-selection approach, the "throw-aways" have invariably been those students who qualified for screening on the basis of non-test criteria. Thus, for example, a teacher nomination is only used as a ticket to take an individual or a group ability test, but in most cases the test score is always the deciding factor. The many and various "good things" that led to nominations by teachers are totally ignored when it comes to the final (selection) decision, and the multiple criteria game ends up being a smoke screen for the same old test-based approach.

The implementation of the identification system described above has helped to overcome this problem as well as a wide array of other problems traditionally associated with selecting students for special programs on the basis of test scores. Generally, students, parents, teachers, and administrators have expressed high degrees of satisfaction with this approach (Renzulli, 1988), and the reason for this satisfaction is plainly evident. By "picking up" that layer of students below the top few percentile levels usually selected for special programs, and by leaving some room in the program for students to gain entrance on the basis of non-test criteria, we have eliminated the justifiable criticisms of those persons who know that these students are in need of special opportunities, resources, and encouragement. The research underlying the Three-Ring Conception of Giftedness clearly tells us that such an approach is justified in terms of what we know about human potential. And by eliminating the endless number of "headaches" traditionally associated with identification, we have gained an unprecedented amount of support from teachers and administrators, many of whom formerly resented the very existence of special programs.

The Achilles Heel of Change

Even modest changes in the status quo inevitably raise concerns and questions on the parts of parents and practitioners who might be affected by the proposed changes. One of the most frequently asked questions about the changes in identification procedures described above is: "How will this approach 'square' with state guidelines?" Before answering this question, I would like to point out that I have not expressed dissatisfaction with the restrictiveness of existing identification guidelines or regulations, but it is my goal to introduce changes that are more consistent with contemporary conceptions of giftedness and the most recent research on human abilities. Each state and school district has "a history" that led to the development of its present guidelines. A part of that history is undoubtedly based on earlier conceptions of giftedness and the need to introduce an element of tidiness into the identification process. It was the now disproved early conceptions and the quest for tidiness that led to the wide use of the test cut-off score approach. But guidelines are not cast in stone! As newer research emerges and as school demographics change, it is contingent on policy-making bodies to review and revise existing guidelines the research cited above, and the contributions of leaders in the field such as Bloom (1985), Gardner (1983), Guilford (1977), Sternberg (1984, 1985, 1999). Torrance (1979) and Treffinger (1982) clearly point the need for a reexamination of the regulations under which most programs are forced to operate. This research is consistently supportive of a more flexible approach to identification and provides a strong rationale for change in current guidelines and regulations. Guidelines should be our servants, not our masters. But if we are to gain more control over our own destiny, we must take concrete steps to bring existing guidelines into step with present day theory and research. Governing agencies have an important role to play in the development of guidelines. The very fact that ministries and state departments of education develop regulations and guidelines reflects a commitment to gifted programs, and in many cases, the allocation of resources to help support special services. Now more than ever before, governing agencies have recognized that widely varying demographics and the growing diversity of students in our school populations require that regulations should serve the purposes of (a) stimulating action at the local level, (b) providing oversight and guidance

for the maintenance of program quality, and (c) allowing enough flexibility for local schools to accommodate diverse talents and alternative approaches to programming.

There is a second Achilles Heel of Change, and this one has to do with the dislike of administrators for *any* identification system that is viewed as not being 100% "objective." Selecting students in any identification system invariably means that some students will *not* be selected. Although this system has built-in guarantees for traditional high scoring and high achieving students, there still remain "judgment calls" that are based on criteria that cannot be scaled in the same way, as is the case with a test-score-only approach. Assertive parents want to see the scores and the point totals, and administrators' telephones ring when parents feel that their child has been overlooked! There is no easy solution for the "objectivity barricade" behind which some people hide to avoid making even small departures from the status quo. The best way to approach any change is by providing all constituents—administrators, teachers, parents, and students—with a thorough understanding of the identification and programming models, the underlying research base, and the flexibility that will allow even unselected students access to special program services through such vehicles as the action information point-of-entry and the opportunity for all students to participate in certain program components such as general enrichment and differentiation in the regular classroom, curriculum compacting when warranted, and participation in enrichment clusters. The Schoolwide Enrichment Model is a school wide model precisely because it provides more opportunities for talent development for more students. But to help parents understand the concept they need to see in clear and concrete ways how the model has built in opportunities that will benefit their own children. It is contingent, of course, on the school to guarantee delivery and documentation of as many of these opportunities as possible. The message to parents will be more effective if they know what the program is all about, that the special program is more concerned with providing their child with the best possible education rather than a label, and that a good program has a radiation of excellence effect that makes school more challenging and exciting for all students. The theme of the Schoolwide Enrichment Model is ***a rising tide lifts all ships***, and so long as parents see their own child's ship rising, they will be more willing to be receptive to the changes proposed in this identification system.

Fortunately, change is in the wind, and a bold new breed of leadership in school administration and gifted education is emerging in many school districts, state departments of education, and at the federal level. These persons have been willing to reexamine present guidelines, and even in the absence of immediate changes, they have allowed for much more flexibility in the interpretation of existing regulations. Proposals for programs submitted to state agencies that only a few years ago were being rejected because they did not meet strict cut-off score requirements are now being accepted and even encouraged.

The Achilles Heel of change is not guidelines, but apathy. If we believe that more flexibility is desirable, we must mobilize professional personnel who have a stake in serving high potential youth. Principals, teachers, superintendents and pupil personnel specialists should be recruited for organized statewide efforts directed toward guidelines that are more responsive to contemporary research. Carefully selected research based documents should be brought to the attention of state boards of education and the education committee of the legislatures. Every effort should be made to develop reimbursement formulas that are based on total district enrollment rather than the number of students identified. It has been this "body count" approach that has forced schools to treat giftedness as an absolute state of being rather than a developmental concept, and the result has been the most rigid kinds of test score identification procedures. Funding based on total district enrollment gives all schools an opportunity to develop the gifts and talents of its most potentially able students, regardless of where they stand on national norm comparisons. And it allows school districts with students who have not traditionally earned the highest scores on state level standardized tests to overcome some of the effects of poverty that have limited their achievement on traditional measures. By getting rid of the body count approach to identification, we will allow districts greater flexibility in the types of identification and programming models they might want to consider (including test-based approaches if they so desire), and we will provide greater equity for districts that serve disadvantaged and culturally diverse populations. *A school, regardless of the population it serves, will not be a good place for any student unless it is a good place for all students.*

There are many young people in our schools who will never get a chance to develop their full potential unless our gifted programs cast a wider net. And this net should not just be concerned with ethnicity or socioeconomic background. Diversity means the broad array of talent areas that are sometimes given little attention in schools because of the increasing focus on narrow views of what is meant by achievement. Gifted programs may be the last refuge for enabling this talent to blossom!

Full many a gem of purest ray serene,
The dark unfathom'd caves of ocean bear:
Full many a flower is born to blush unseen,
And waste its sweetness on the desert air.

Thomas Gray
Elegy Written in a Country Churchyard

To be certain, there will be a little less tidiness in the identification process, but the trade off for tidiness and administrative expediency will result in many more flexible approaches to both identifying and serving young people with great potential. From a research perspective, new data will be available and thus, new dialogue and controversy will emerge. This is indeed how new research evolves, how new ideas and insights are realized, how a field of study continues to improve and to revitalize itself, and how science goes on forever and ever in its quest to improve the human condition.

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Appendix A

Research Related to the Three-Ring Conception of Giftedness and the Schoolwide Enrichment Model

- Reprinted from: Renzulli, J. S., & Reis, S. M. (1994). Research related to the Schoolwide Enrichment Triad model. G*ifted Child Quarterly, 38*(1), 7-20.

Research Related to the Three-Ring Conception of Giftedness and the Schoolwide Enrichment Model[1]

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Abstract

The Schoolwide Enrichment Triad Model (SEM) is a product of 15 years of research and field testing combines the previously developed Enrichment Triad and Revolving Door Identification Models. SEM has been implemented in school districts worldwide, and extensive evaluations and research studies indicate the effectiveness of the model. In this article, a brief explanation, of SEM is provided as a summary of the research conducted on this approach. The review of the research is subdivided into (a) the effectiveness of the model as perceived by key groups, (b) research related to creative productivity, (c) research relating to personal and social development, (d) the use of SEM with underserved populations, (e) research on self-efficacy, (f) the use of SEM as a curricular framework, (g) research relating to learning styles and curriculum compacting, and (h) longitudinal research on the SEM. Research suggests that the model is effective at serving high-ability students in a variety of educational settings and in schools that serve diverse ethnic and socioeconomic populations.

Programs based on enrichment models and enrichment activities are the most commonly used approach in gifted education. However, options based on enrichment are not as well supported by research as are programs based on acceleration. Research on acceleration has provided strong support for the benefits of acceleration in the area of mathematics; and the objectivity of the variables being examined (e.g., math grades and math performance) has enabled researchers to use powerful quantitative research designs. Research on variables associated with enrichment, on the other hand, usually examine more complex student outcomes such as creativity, the quality of student products, and the influence of process-training activities on subsequent applications to real world problems.

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A growing number of quantitative and qualitative studies provide information about the effectiveness of various kinds of enrichment activities. The purpose of this article is to summarize a series of studies that have examined various aspects of one specific enrichment model. Following a brief description of the Schoolwide Enrichment Triad Model, a summary of research dealing with eight categorical components of the model will be presented. These components include: the effectiveness of the model, creative productivity, personal and social development, underserved populations, self-efficacy, SEM as a curricular framework, research relating to learning styles and curriculum compacting, and longitudinal research on the model.

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.

Putting the Research to Use

Administrators, teachers, and parents are often interested in research about the effectiveness of various gifted program interventions. Research on the benefits of various types of acceleration has been widely disseminated, but research on the effectiveness of various other types of gifted programs has been less widely reported because of the difficulty of measuring outcomes such as creative productivity, and increases in affective processes such as leadership, self-concept, and self-directed learning. The numerous research studies summarized in this article indicate the effectiveness of the Schoolwide Enrichment Model. In studies of numerous components of the SEM, research studies provide proof of the usefulness of the model with various populations in various types of settings.

Field-based educational research faces numerous limitations: thus the following review is offered with a cautionary note. These limitations are further elaborated upon in the conclusion of this article. In addition, it should be noted that only one comparative study (Heal, 1989) was completed comparing the effects of SEM to other enrichment models or strategies. Other studies do report results using within-model comparisons (Delisle, 1981; Reis, 1981) or the SEM program as compared to no intervention (Karafelis, 1986; Starko, 1986). Because control or comparison groups of students participating in alternative enrichment models are not used, it is difficult to attribute various results to

participation in the SEM. Accordingly, alternative explanations may exist for some of the findings presented in this manuscript. However, the generally positive conclusions about the SEM with which we summarize the article are drawn from the series of research studies reported, the relatively large samples involved in some of the studies, and the practice of a large team of researchers to use designs which attempt to control for the many factors influencing educational research.

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).

Effectiveness as Perceived by Elementary Students, Parents, Teachers, and Administrators

Three researchers have examined the effectiveness of the SEM as it relates to elementary school children, parents, teachers, and administrators. Reis (1981) analyzed the responses from questionnaires and interviews and prepared separate reports for each of eleven participating school districts in the northeast that represented a wide variety of communities including urban, suburban, and rural. The data gathered from classroom teachers, administrators, students in the talent pools, and their parents indicated that feelings about the SEM program were generally positive. Many classroom teachers reported that their high level of involvement in the program had favorably influenced their teaching practices. Parents whose children had been placed previously in traditional programs for the gifted did not differ in their opinions about the program from parents whose children had been identified as gifted under the expanded SEM criteria. Resource teachers, many of whom had been involved previously in traditional programs for the gifted, overwhelmingly preferred the revolving door identification procedure to the traditional reliance on test scores alone.

Olenchak (1988) investigated the use of the SEM as a plan for applying some of the methods and instructional strategies of gifted education to the overall process of schoolwide change in 18 elementary schools in six states. Specific emphasis was placed on the effects of SEM on both teacher attitudes toward their work, student attitudes toward learning, and on general changes in behavior among school administrators, parents, teachers, and students. The first study, a quantitative and qualitative examination of SEM's effects on teacher attitudes toward their profession (n=236), revealed statistically significant (p<.001) positive changes when the intervening variables of grade level, gender, years of experience, years of training, and schoolwide aspects of discipline, administrative leadership styles, and conflict resolution were controlled. Interview data (n=66) enhanced these results with statistically significant (p<.001) improvements in teacher attitudes toward education of the gifted. Similarly, when student attitudes toward learning were examined (n=1,698), with the intervening variables of grade, teacher, classroom climate, and teaching style controlled, statistically significant positive changes (p<.01) resulted. Student interviews (n=120) likewise showed statistically significant

($p<.001$) improvement toward gifted education and its various components. The study also resulted in statistically significant ($p<.001$) improved attitudes toward gifted education among parents of both gifted and nongifted students and among school principals. Student creative productivity was also studied, and students were found to pursue individual and small group investigations with a high percentage of completion that resulted in Type III products of exceptionally high quality. In addition, this study produced a model for implementation of SEM through a structured series of training sessions aimed at the various client groups whom the program would ultimately influence: teachers, administrators, parents, school staff, and students (Olenchak, 1988; Olenchak & Renzulli, 1989).

Cooper (1983) also investigated administrators' attitudes towards SEM by examining the attitudes of superintendents, principals, and special education/pupil personnel directors in eight districts using the SEM. Multi-site case studies were used to gather both quantitative and qualitative data in investigating the following four research questions:

1. What types of information do administrators need to make decisions about the efficacy of gifted programs?
2. What are the service delivery goals (content, methodology, outcomes) of enrichment-based gifted programs?
3. What are the indicators of how well the gifted program fits into the total school curriculum?
4. How flexible is the Schoolwide Enrichment Model in accommodating local needs and resources?

The Key Features Evaluation Model (Renzulli, 1975) was used to organize data collection from the 32 administrators involved in the study. The tools used for data collection included annual and monthly reports, questionnaires, interviews, rating scales, program documents (such as curriculum compactor forms and management plans for Type III projects), and program plans submitted to the State Department of Education. Data from administrator and teacher interviews were triangulated with data obtained from classroom observations and an examination of 10 program records which were requested from each district.

Coopers' findings underscore the importance of administrators' knowledge of and involvement in effective programs and revealed the impact of SEM on all students. Several administrators reported comments about the effectiveness of the SEM, including:

> [The model] is a sharing program with the rest of the school. It has more impact academically as a sharing program with other classes than any other program I've seen. [It is] a strong plus . . . [when] the administrator sees the building operating as a unit.

Indicators of how well the gifted program had been integrated into the total school curriculum were of a political and economic nature. Political advantages of the Schoolwide Enrichment Model included greater staff involvement in gifted children's

total education; more positive staff attitudes toward the gifted program; fewer concerns about identification; positive changes in how guidance counselors worked with students; more excitement about teaching in general; more incentives for students to strive for higher goals through modeling (students were now eager to pursue topics of great personal interest to them even though they hadn't been identified formally for the gifted program); and a better quality of life for both students and staff.

Research Relating to Creative Productivity

Reis (1981), Gubbins (1982), Burns (1987), and Newman (1991) studied the effects of different types of training programs on students' ability to initiate and/or complete Type III study, and Delcourt (1988) and Starko (1986) investigated various components of the process of creative productivity.

Research Relating to the Quality or Noncompletion of Products

Reis (1981) analyzed the quality of products completed by students involved in a SEM program using the Revolving Door Identification Model. The population for the study consisted of 1,162 students in grades 1 through 6; they came from 11 school districts—some rural, some suburban, some urban—and represented a variety of ethnic backgrounds. The 11 participating school districts used the flexible identification procedures to select students for their talent pools comprising 15% to 25% of the general student population.

The talent pools in each district and at each grade level were divided into two groups for purposes of data analysis. The first group (Group A) consisted of students who scored in the top 5% on standardized tests of intelligence or achievement. These students would have been identified for placement in a gifted program by traditional guidelines; in fact, most members of this group had already been enrolled in such programs in previous years. The second group (Group B) consisted of students whose abilities were well above average but who scored below the top 5% on standardized tests and, therefore, would not have been eligible under traditional guidelines for special services. Students in this group entered gifted programs in their respective schools under the expanded entry criteria of the revolving door model. Both groups participated equally in all program activities. Reis examined the following two research questions:

1. To what extent and in what manner do the age and sex of talent pool students affect the frequency in the process of "revolving in" to the resource room to engage in advanced level investigations?
2. Is there a significant difference in the quality of products completed by male and female students in a gifted program who would have been identified according to traditional guidelines (the top 1-5% as usually selected by high scores on group achievement or IQ tests) and those male and female students eligible for inclusion under the broadened guidelines of the Schoolwide Enrichment Model?

Reis found that a significantly higher proportion of females completed advanced level products than males. She also found that a significantly higher proportion of fourth

through sixth grade students completed products than the first through third grade students. Analysis of variance procedures were carried out to determine if a significant difference existed in the quality of products completed by male and female students in a gifted program who would have been traditionally identified (the top 5%) and those male and female students eligible for inclusion under the expanded guidelines of the SEM (the next 15-20%). The quality of products completed by students was assessed by their resource teachers through the use of the *Student Product Assessment Form* (Reis, 1981). This instrument provides individual ratings for eight specific qualitative characteristics of products and for seven factors related to overall product quality. The validity and reliability were established through a yearlong series of studies, using a technique developed by Ebel. Levels of agreement among raters on individual items of the scale ranged from 86.4% to 100%. By having a group of raters assess the same set of products twice, with a period of time between ratings, we established a reliability coefficient of .96 for the instrument.

As presented in Table 1, an analysis of variance of these data revealed that, as assessed by resource teachers using the *Student Product Assessment Form,* the quality of products completed by students in the two groups was indistinguishable on every individual key concept and on the total of all items ($p<.08$). In fact, the mean score of the total of all of the key concepts was slightly higher for students who would not have been identified (Group B) and therefore, would not have participated in the traditional gifted program in their district.

An analysis of variance was also carried out to determine if a significant difference existed in the quality of products completed by males and females. An analysis of variance on these data revealed that no significant difference was found between males and females in sub-totals 1-8, 9A-G, or in the total of all of the key concepts (1-9G) on the *Student Product Assessment Form. A*n analysis of variance procedure on these data also revealed that interactions between sex and group with respect to the quality of products existed for the total of the key concepts. The interaction of the total of items 1-9G on the *Student Product Assessment Form* shows that the highest product quality ratings were found for females who were traditionally identified (usually the top 5%) and for males who were identified under the expanded guidelines of the SEM (next 15-20%). Follow-up *t*-tests were used to examine differences between groups within each of the respective sexes. When the total of all of the Key Concepts was examined, no significant differences were found between males and females in Group A and males and females in Group B. The findings of this research indicate that programs for the gifted that rely on traditional identification procedures may not be serving the wrong students, but they are certainly excluding large numbers of above average pupils who, given the opportunity, are capable of producing equally good products.

Table 1

Group Differences on the Quality of Advanced-Level Products Completed by Talent Pool Students

	Group A (Top 5%)		Group B (Next 15-20%)			
Key Concept on the Student Product Assessment Form	***n* = 112[a]** **Mean**	**Standard Deviation**	***n* = 214[a]** **Mean**	**Standard Deviation**	**F-Ratio**	**Significance of *F****
1. Early Statement of Purpose	4.41	0.87	4.34	0.81	0.389	0.533
2. Problems Focusing	4.17	1.01	4.11	0.94	0.206	0.650
3. Level of Resources	3.38	1.22	3.46	1.19	0.234	0.629
4. Diversity of Resources	3.20	1.29	3.28	1.24	0.278	0.599
5. Appropriateness of Resources	3.84	1.19	3.83	1.12	0.001	0.970
6. Logic, Sequence, and Transition	3.96	1.07	8.83	1.10	1.120	0.290
7. Action Orientation	4.14	1.12	4.14	1.01	0.002	0.967
8. Audience	4.06	1.28	4.11	1.06	0.199	0.565
Subtotal Key Concepts 1-8	3.92	0.87	3.93	0.83	2.810	0.095
9. Overall Assessment						
A. Originality of the Idea	3.10	0.83	3.05	0.87	0.295	0.587
B. Achieved Objective Stated in Plan	3.29	0.89	3.33	0.83	0.183	0.669
C. Advanced Familiarity with Subject	3.19	0.88	3.06	1.06	1.569	0.211
D. Quality Beyond Age/Grade Level	2.96	0.89	2.97	0.92	0.004	0.952
E. Care, Attention to Detail, etc.	2.92	0.98	3.02	0.94	0.992	0.338
F. Time, Effort, Energy	3.04	1.03	3.20	0.87	2.280	0.132
G. Original Contribution	3.08	0.93	3.11	0.92	0.035	0.852
Subtotal Key Concepts 9A-G	3.07	0.76	3.11	0.72	0.136	0.713
Total Key Concept 1-9G	3.51	0.79	3.53	0.73	0.078	0.780

a The *n*'s vary slightly on each key concept due to nonapplicable items which were checked on the *Student Product Assessment Form* and subsequently coded as missing values.

Gubbins (1982) investigated the use of the model to: (1) to determine whether the constructs of achievement, academic self-concept, and locus of control were correlates of creative/productive behavior; (2) to identify factors that explain why certain students did not engage in product development; and (3) to examine factors associated with the non-completion of a product. The *Self-Appraisal Inventory* (Instructional Objectives Exchange, 1972) and the *Intellectual Achievement Responsibility Questionnaire* (Crandall, Katkovsky, & Crandall, 1965), measuring academic self-concept and locus of control, respectively, were administered to students in grades 4-6. These data, along with achievement test scores, were entered into a series of step-wise multiple regression procedures to assess their impact on the criterion of product development. Data analyses indicated that academic self-concept was a significant predictor. However, this variable accounted for only 3-6% of the variance. Relative to the second purpose, several findings resulted from questionnaire data obtained from students who did not initiate products:

(1) Approximately 15% of this group was not involved in preliminary activities based on the Enrichment Triad Model; (2) Those who were involved in enrichment activities experienced Type I activities in science and social studies and Type II training in creative and critical thinking; and (3) The lack of product development was related to the difficulty in generating product ideas and to time management.

Finally, the study centered on the approximately 50% of eligible talent pool students who did not choose to do a project. Overall, it was concluded that the regression results were of negligible value in uncovering the correlates of creative production. However, the results of the questionnaire and interview data were significant in revealing factors critical to the implementation of a model focusing on the creative/productive behavior of gifted students. Of particular interest in this study was Gubbins' analysis of students who did not develop products (345 of 775) or those students who started products but did not complete them (7 of 430). Sixty-one percent of the students who did not develop a product indicated that they did not have an idea for what they might study. Forty-five percent of the students indicated that they would have to make up classwork that they missed and a nearly identical percentage (44%) indicated that they had a full schedule in school. The remarkably low percentage of non-completers is also indicative of the enjoyment most students had in the completion of their products. A review of the trends and patterns in the response data disclosed four factors that interfered with the product completion: interest level, task commitment, time commitment, and human and material resources (Gubbins, 1982).

Reis (1981) and Gubbins (1982) found that approximately 40-50% of identified talent pool students in new SEM programs do not choose to participate in the Type III investigations described earlier. Although personal variables can account for some of the variation in students' decisions to begin such projects, these two researchers have speculated that programming practices may account for a larger portion of this variance. Both researchers suggested two practices that might increase student participation in the Type III component of the Enrichment Triad Model. First, they suggested that more teachers should provide curriculum compacting within the regular classroom to provide more time for Type III projects. Second, they suggested that teachers of the gifted might provide above average ability students with Type II training units that were specifically designed to teach students how to identify their interests, find problems, and develop a research design or problem solving paradigm.

The Effects of Training on Type III Products

Burns (1987) and Newman (1991) investigated the use of different training programs on participation in Type III studies. Burns (1986) compared the effects of Type II training (in how to focus and manage a Type III project) and additional personal and environmental variables on 515 students' decisions to initiate problem solving investigations (Type IIIs) in new SEM programs. Forty-eight groups of above average ability students in grades 3-8 were randomly assigned to either comparison or experimental groups. Students in the treatment group received seven Type II lessons in how to organize a Type III investigation. Students in the comparison group received Type I experiences or Type II training in one of the other sets of skills within Renzulli's

Type II taxonomy. The initiation of a Type III investigation was used as the dependent variable in the study. Personal variables and participation in either the treatment or the control group were entered into a hierarchical discriminant function analysis to identify the strength of the treatment beyond the personal variables of grade, gender, self-efficacy, learning style preferences, academic achievement, and academic aptitude. The discriminant function equation proved to be significant (X^2=121.69, p<.00001). All eight predictor variables proved to be significant and accounted for 22 percent of the variance between groups.

As a group, the students who received the Type II training were 64 percent more likely to initiate a Type III investigation than the students who did not receive the training. Participation in group was about three times more important than grade, and more than three times as important as gender, achievement and prior involvement in creative projects in predicting which students would initiate Type III investigations. Learning style preferences for independent study and projects were relatively unimportant and pre self-efficacy scores were the second most powerful predictors of student initiation of Type III projects. The success of the experimental lessons that were developed for this study (Burns, 1987) suggests that teachers in programs that stress real world problem solving might consider spending more class time teaching students how to initiate and plan such projects. Burns concluded that teaching these skills prior to the initiation of the projects, would increase the number of students who undertake these investigations during the academic year.

Newman (1991) investigated the integration of a set of Talents Unlimited (Schlichter, 1986) training lessons (in creativity, planning, decision making, forecasting, and communicating) with teacher guidance in how to plan, manage, and complete a Type III investigation in order to examine the effects of these lessons on the quality of products and number of students who chose not to complete products. Talents Unlimited is often used as a Type II training component in SEM programs. Subjects included 147 Talent Pool students in grades three through six, from three school systems which implement the SEM and the Talents Unlimited model. Students in the treatment group received training in applying the Talents Unlimited model to steps of investigating a real problem. Students in the comparison group continued to follow guidelines described in the *Schoolwide Enrichment Model* (Renzulli & Reis, 1985) as they pursued their investigations. Data collection included tallies of the number of Type III investigations initiated, the number actually completed, and the number of students who did not complete Type III studies. Student products were evaluated by two independent raters using the *Student Product Assessment Form* (Reis, 1981). In addition, logs and conferences were used to provide an internal check on the consistency of procedures, as well as to determine student and teacher perceptions, attitudes, and reactions to the treatment lessons. When examined in relation to the comparison group, the treatment group had significantly fewer students who did not complete products, as measured by Chi-square analysis X^2=(1, N=160)=20.198; p<7.05. Results of analysis of variance procedures also showed a significant difference in the quality of products completed by students in the treatment group. Finally, qualitative analysis supported the statistical

analyses and indicated favorable reactions from students and teachers toward the treatment.

Investigations of Student Creative Productive Behaviors

Delcourt (1988) and Starko (1986) investigated student creative productivity. Delcourt (1988) investigated characteristics related to creative/productive behavior in adolescents who consistently engaged in first-hand research of self-selected topics. The topics were related to activities both within or outside of school. Selection of students for this study was based upon the quantity and quality of their projects. Therefore, giftedness was viewed as being manifested in performances. In contrast to a static perspective of the gifted individual, this conception of giftedness focused upon the dynamic nature of gifted behavior (Renzulli, 1986). The sample consisted of 18 students in grades 9 through 12 from four sites in the Northeast. All sites were located in typical high schools, as opposed to special schools for the gifted and talented. These schools conducted programs for the gifted and talented, focusing upon the development of creative/productive behavior in students. Programming included advanced placement courses, honors classes, special seminars, and mentorships.

A qualitative analysis of student interviews, questionnaires, and documents was conducted. To provide checks for both reliability and validity of collected data (Smith, 1975), triangulation was sought from three sources: the school, the student, and the parents. A microcomputer program, The Ethnograph (Seidel, Kjolseth, & Seymour, 1988), was employed for Sorting and retrieving coded text data. Responses to the following question were analyzed: "Having developed several products, how do you think your ability to work on these projects has changed over time?" These responses were separated into the following groups: (a) changes related to improvements in products, changes related to the skills necessary for product completion (e.g., writing, research methodology); (b) changes in personal characteristics (e.g., patience, self-satisfaction); and (c) changes related to career choices. Results concerning the family, the school, and the individual revealed the following: (a) targeted students do exhibit characteristics similar to those of creative/productive adults; (b) these students can be producers of information as well as consumers; and (c) the learning processes of these students merit closer attention if their abilities are to be better understood by themselves, their parents, and their teachers.

Starko (1986) also examined the effects of the Schoolwide Enrichment Model on student creative productivity. This research compared students who participated in SEM programs for at least four years with students who qualified for such programs but received no services. Questionnaires were used to determine the number of creative products produced by both groups, both within school programs and in dependent activities outside of school, as well as to gather information about attitudes and skills associated with creative productivity. Hierarchical multiple regression, as well as qualitative analysis of open ended questionnaire items, was used for data analysis. Results indicated that students who became involved in independent study projects in the SEM more often initiated their own creative products both *in and outside of school* than did students in the comparison group. A total of 58 students in the program when

compared to 45 students in the comparison group participated in the study. The group in the enrichment program reported over twice as many creative projects per student (3.37) as the comparison group (1.4). The group that participated in the enrichment program also reported doing over twice as many creative products outside of school on their own time (1.03) than the comparison group (.50).

Additionally, students who had participated in the enrichment program showed greater diversity in projects and more sophistication in both the creative products attempted and in their description of goals. One student was not just "painting" but "painting and working on a catalogue of my paintings," others did not just read about animals but "observed the habits of wild animals and recorded my observations." Other examples from the enrichment group include students who composed music, wrote novels in various genre (romance, mystery, etc.), created a launching system for model rockets, designed and built model houses and furniture.

Research on SEM Relating to Personal and Social Development

Several studies have investigated aspects of personal and social development of students involved in SEM programs. Delisle (1981) examined the self-concept and locus of control of talent pool students. Olenchak (1991) examined the effects of SEM on attitudes toward learning and self-concept. Skaught (1987) investigated the social acceptability of talent pool membership. Heal (1989) compared perceptions about being labeled gifted across four types of elementary programs, including the SEM program.

Self-Concept Research

Delisle (1981) examined academic self-concept and locus of control in his study of the implementation of the model. In a manner similar to Reis (1981), Delisle investigated differences between a group of students who were traditionally identified by achievement or IQ (the top five percent) and an expanded talent pool (the next 15 - 25% as identified locally). No measurable difference was found in the product completion rate by students in the traditional group when compared to students in the expanded talent pool, Delisle found the following significant correlations regarding self-concept and locus of control in students in Grades 4 - 6, confirming the relationship of nonintellectual factors in the development of creative productivity.

1. Children with high academic self-concepts tended to "revolve in" to the resource room (r=.210, p<.001).
2. Children with high academic self-concepts tended to complete their initiated projects (r=.201, p<.001).
3. Children who internalized their academic successes tended to "revolve in" to the resource room (r=.123, p<.001).
4. Children with high academic self-concepts tended to internalize their academic successes (r=.346, p<.001).
5. Children who internalized their academic successes tended to internalize their academic failures (r=.193, p<.001). (pp. 38; 40)

Olenchak (1991) examined the effects of SEM on attitudes toward learning and on self-concept among 108 elementary students with concomitant learning disabilities. The effects of SEM on the creative productivity of these youngsters were also studied. Using a hierarchical regression model that controlled for pretreatment scores and the intervening variables suggested from the previous studies, gifted/LD student attitudes toward learning were significantly improved ($p<.01$). With regard to self-concept scores, the study showed statistically significant gains among all of the students; differences between pretest and posttest scores were significant for dependent *t*-tests ($p<.001$), and the effect size was .339. When self-concept results were analyzed via ANCOVA as 6 control for the pretest, no significant differences in gain between gender and across grade levels were revealed ($p=.33$). Analyses of student productivity paralleled those from the first study: namely, that students completed a high percentage of the Type III investigations they initiated and that their completed projects were of high quality (Olenchak, 1991). Taken together, the results of each of these studies support the use of SEM as a plausible means for meeting the educational needs of a wide variety of high-ability students.

Research Related to Social Acceptability

One of the goals of the SEM is to reduce the "condition of separateness" that often exists between gifted and regular school programs. SEM attempts to minimize the negative attitudes expressed toward high-ability students receiving special services through a broader definition of giftedness and services to both identified talent pool students and non-talent pool students. Skaught (1987) examined the nature of the social acceptability of talent pool students at the elementary level in a school using the Schoolwide Enrichment Model. Previous research has indicated that identified gifted students perceive themselves as ostracized by their classmates (Torrance, 1965; Webb, Meckstroth, & Tolan, 1982), and some gifted children report encountering hostility and ridicule from fellow students who mock the advanced abilities of brighter children (Delisle, 1984; Feldhusen, 1985).

In Skaught's study, sociometric measures were analyzed to determine the social acceptability of talent pool students before and after receiving special services for high-ability students. Pretest and posttest scores on a peer relationship scale of a self-concept test were used to assess the talent pool students' perceptions of peer acceptance. Results indicated that students identified as above average in a SEM program were positively accepted by their peers. Skaught (1987) also found that a "condition of separateness" did not exist in schools where the SEM had been implemented.

Research Related to Perceptions About Labeling

Using a comparative case study analysis, Heal (1989) described and analyzed patterns of gifted students' perceptions toward being labeled gifted within and across four elementary program models in southern New England. The administrative conditions for these models included the SEM, a pullout program serving the top 5% of the student population, full-time classes for the gifted, and an independent school for gifted students.

Previous studies have examined the concept of labeling from various perspectives; however, only a few studies have investigated labeling from the perspective of the labeled youths. Likewise, only a small number of researchers have utilized the labeling perspective of social deviance theory in order to examine gifted and talented populations. No previous research could be located that explored the labeling of giftedness under different administrative conditions. The data in this qualitative research study were collected from 149 students in grades 4 through 6 using open-ended questionnaires, in-depth interviews, and writing samples. Triangulation and cross-validation of data assisted in revealing the emerging patterns, as well as controlling for bias. The results revealed that identification procedures, the program structure, and the resulting interpersonal reactions contributed to gifted students' perceptions of being labeled. While placement was not a problem for the youngsters in the SEM program, becoming a program member was problematic for almost all of the students from the other programs. The youngsters reacted negatively to the gifted label, their loss of friends, heightened teacher expectations, and the rigorous workload. The females reported a greater number of negative reactions than did the males. As the program models became more segregated and as the use of the gifted label increased, the reactions toward the label intensified; SEM was associated with reduced negative effects of labeling.

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.

Gifted Students at a Vocational/Technical High School

Taylor (1992) examined the effects of the SEM on career development of gifted students at a vocational/technical high school. Career development has been defined as the continuous process of making career decisions based on the individual's experiences and interactions (Houston, 1990). Secondary gifted programs provide services to students at a time when their main focus is determining individual identity, and they are involved in recognizing and exercising their particular interests, competencies, and values. It seems probable that services provided to students during this time period will have an impact on their career development. Taylor found that involvement in Type III studies substantially increased the post-secondary education plans of gifted students in a vocational/technical school. Specifically, students changed their college plans from attending 2.6 years to attending 4.0 years of post-secondary education after they completed a Type III study.

The significance of this research is especially important when closely examining the ramifications in career development of special populations. This study indicates that involvement in the creative productive process enables students to reassess their vocational identity. The establishment of programs for academically able youth, which affect the career aspirations of students, is especially important in populations where student aspirations do not match their potential.

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.

Research on SEM Relating to Self-Efficacy

Bandura (1977a) described self-efficacy as a cognitive mediator of behavior and defined it as an individual's belief in his or her ability to successfully perform in a given situation. Bandura (1977b, 1982) found that estimations of the ability to carry out a particular behavior were correlated with subsequent performance of that behavior and that certain interventions increased both self-efficacy estimations and subsequent performance of target behaviors. Efficacy beliefs influence whether the behavior will be initiated, the amount of effort that will be expended, and the degree of perseverance in the face of difficulty. Accordingly, some researchers have hypothesized that the successful completion of a Type III study, should raise students' self-efficacy regarding future efforts. Schack (1986) investigated the effect of participation in a treatment designed to

increase self-efficacy on both efficacy and involvement in Type III projects (independent or small group investigations). Schack (1986) defined self-efficacy as "an individual's level of confidence doing a particular behavior" (p. 19). Subjects were 294 students in grades four through eight who were participants in gifted programs based on the Enrichment Triad Model in eight schools. Hierarchical multiple regression analysis was used to investigate whether participation in a research methodology mini-course explained initiation of independent investigations beyond what was accounted for by grade, sex, years in the gifted program, and previous Type IIIs completed. Two causal models were tested, using stepwise multiple regression and path analysis. The first model postulated the influence of grade, sex, years in the gifted program, previous Type IIIs, pre- and post-treatment self-efficacy, and initiation of a Type III on final efficacy scores. The second examined the role of the first six variables and participation in the treatment on subsequent initiation of Type IIIs by students who had not done so prior to the start of the treatment (Schack, Starko, & Burns, 1991). Self-efficacy was a significant predictor of initiation of Type IIIs, and self-efficacy at the end of the treatment was higher for students who participated in Type IIIs. The effect of treatment on self-efficacy or subsequent initiation of Type IIIs was not significant when considered with the other variables in the causal model. Schack's research supported the role of self-efficacy in creative productivity among above average ability children in gifted programs designed to encourage such behavior, though the influence of an intervention to increase efficacy or the target behavior was not demonstrated.

Additional studies (Starko, 1986; Stednitz, 1985) were conducted involving the self-efficacy of students in a gifted program using the Enrichment Triad Model. Stednitz defined school-related self-efficacy as "children's estimation of their ability to perform a certain school-related behavior" (1985, p. 5). Stednitz found that "very young children are able to estimate perceived ability on specific tasks." Yet her findings indicated that participation in an eight week series of Type I Enrichment Activities failed to show any changes in self-efficacy. Additional qualitative analysis conducted by Stednitz (1985) suggested that the series of enrichment activities that did not result in changes in self-efficacy did have other positive effects. An interest questionnaire was administered to both treatment and control group students when asked what they would like to collect and what they would like to learn about, enrichment topics were mentioned 28 times by children in the treatment group and 10 times by children in the control group (Stednitz, p. 90). These and other qualitative data gathered by Stednitz suggest "that the activities offered during the treatment phase of the study increased the interest and curiosity level of children in the treatment group as compared to children in the control group. It remains to be shown how to sustain and make such interests grow" (Stednitz, p. 92).

Starko examined the relationship between efficacy and creative productivity by examining levels of participation in a Triad/RDIM program, creative productivity inside and outside of school, and self-efficacy with regard to creative productivity. This study compared students who had participated in Triad/RDIM programs with comparable students who had been identified for a gifted program but had not yet received services. Analysis indicated that the number of creative products produced in school was a highly significant predictor of self-efficacy ($p<.001$), explaining 16.5% of its variance. Group

alone was not a significant predictor or self-efficacy, suggesting that being in the Triad/RDIM gifted program was not sufficient to increase self-efficacy as a creative producer; participation in a Type III project was necessary.

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 Tests 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 his/her 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.

Future Directions for Theory-Based Research on Enrichment Program Models

The use of educational enrichment represents a complex approach to programming for students of high potential. Enrichment programs are often characterized by a commitment to the development of higher powers of mind, advanced levels of product development, and learning outcomes that represent a synthesis of cognitive, affective, and motivational behaviors. The complexity of the goals and outcomes of enrichment models presents a somewhat unique problem for educational researchers because these outcomes cannot be measured as easily and precisely as those objectives that deal with the acquisition of specific skills. As we move up the scale of learning behaviors, from the simple acquisition of knowledge to the development of complex thinking processes as reflected in creative student products, it becomes increasingly difficult to find evaluation instruments that meet the scientific and practical requirements necessary for high quality research. While virtually hundreds of valid and reliable instruments are available to measure basic skills in traditional areas of school achievement, instruments for evaluating higher level processes and products are not readily available. Learning outcomes in enrichment programs often relate to the development of interests, the acquisition of independence and self-directed learning, and the joy of learning that is developed through self-selected studies.

A second issue related to research on enrichment programs is that individualized objectives are often developed for each student involved in the program. The use of standardized testing may be appropriate for those aspects of a program in which standard group instructional practices are followed. However, when program objectives and related services vary because of a commitment to accommodate individual interests, abilities, and learning styles. Many of the "rules" of standard research design and the use of normative referenced tests do not readily apply. Future research on enrichment models should take into consideration their unique and complex characteristics. If differentiated

objectives require differentiated educational services, then it follows that differentiated research practices will be necessary to examine various aspects of program effectiveness.

Measurement and formal testing often play a major role in research studies, but certain cautions are necessary when we consider the use of standardized tests in carrying out research studies on programs that serve gifted and talented students. In addition to measurement problems implicit in the discussion of higher level objectives discussed above, problems often arise when we attempt to use norm referenced tests that were developed for general populations. Conventional standardized tests are based on the normal distribution curve, and for this reason, the equality of units of measurement is open to question. The main issue in using age, grade, or percentile norms is that we cannot assume that a year's growth or growth in a given number of percentile points is a uniform unit. Thus, for example, if the performance of an average student increases from the fortieth to the fiftieth percentile over the course of a school year, we cannot assume that this is a greater gain than that made by a student whose score increased from the ninetieth to the ninety-fifth percentile. The higher scoring student initially scored at the upper end of the normal curve continuum where it is much more difficult to show incremental growth that is reflected in percentile score points. The same is true for age and grade scores. Generally, there is a slowing down of gains at the upper level of most performance tests that were normed on general populations. For this reason, research studies using standardized tests should avoid making comparisons between gifted students and other populations. This can be done by developing separate sets of norms for each distinct population whose growth is being evaluated, provided of course, that the test has a broad enough range to allow students to show maximum growth. If a test does not have enough "top" in it, highly able students may score at the upper limits, but we will be unable to determine their true growth because of the low ceiling of the test. Since many standardized tests are designed to provide achievement information for the vast middle ranges of ability, their content in interpretive data may not be valid for children who deviate markedly upward from the mean.

The use of conventional tests with gifted and talented students also presents some problems in the statistical treatment of research data. As was pointed out earlier, test reliability is a function of group diversity—the more heterogeneous the group the higher the reliability. Since gifted groups frequently are, by definition, relatively homogeneous groups, and therefore frequently show a narrower range of test scores than the population in general we should be extremely cautious when viewing the reported reliabilities of standardized test. Unfortunately, most test publishers do not report reliabilities for sub-populations within their standardized sample, and therefore it may be necessary to conduct a "local" reliability study whenever conventional tests are used with special populations.

One of the major statistical problems encountered when working with the test scores of high-ability students is the well-known "regression toward the mean effect." Although this is a complicated statistical phenomena, simply stated it means that predicted scores tend to "move in" toward the mean of the distribution. Thus, if we are using a pretest and a post-test designed to evaluate the effects of a program for the gifted, and if the students'

scores on the pretest are initially high, it is quite likely that their post-test scores will actually decrease due to the regression effect. Researchers dealing with high-end populations should, therefore, exercise a great deal of caution when considering pre/post designs and other statistical designs that do not take into account the lack of normality in the distribution of gifted students' tests scores. When pretest and post-test scores are used, it may be necessary to use above grade level tests and to explore the use of non-parametrics statistics or multivariate methods of analysis.

Finally, because of the problems discussed above, researchers who are examining the impact of enrichment models need to consider a combination of qualitative and case study designs as well as traditional quantitative experimental designs. Recent developments in more sophisticated qualitative and case study approaches, and a greater receptivity of these designs on the part of the research community at large, have opened the door to a broad new range of research possibilities for studies that are attempting to examine complex human behaviors. We believe that the nature of enrichment programs offers researchers one of the most creative challenges for the development of an entire new technology for educational research and new opportunities to contribute to the methodology as well as the content of the field.

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Appendix B

Sample Teacher Training Exercise for Completing the *Scales for Rating the Behavioral Characteristics of Superior Students-R (SRBCSS-R)*

[**Note:** A separate training activity is available for each of the 14 scales in SRBCSS-R]

Sample Teacher Training Exercise for Completing the *Scales for Rating the Behavioral Characteristics of Superior Students-R (SRBCSS-R)*

CREATIVITY CHARACTERISTICS

TASK No. 1: Individually, select the letter of a key concept that you believe most closely matches each item.

TASK No. 2: In a small group, discuss specific examples of when you have observed each behavior in a student.

Key Concepts		
A. Flexible Thinker	D. Astute	G. Original Thinker
B. Imaginative	E. Non-Conformist	H. Fluent Thinker
C. Risk-Taker	F. Mentally Mischievous	I. Witty

The student demonstrates . . .

1. imaginative thinking ability. _____
2. a sense of humor. _____
3. the ability to come up with unusual, unique, or clever responses. _____
4. an adventurous spirit or willingness to take risks. _____
5. the ability to generate a large number of ideas or solutions to problems or questions. _____
6. a tendency to see humor in situations that may not appear to be humorous to others. _____
7. the ability to adapt, improve, or modify objects and ideas. _____
8. intellectual playfulness, willingness to fantasize, and manipulate ideas. _____
9. a non-conforming attitude, does not fear being different. _____

Appendix C

Renzulli Identification System: Information Summary Form

Renzulli Identification System: Information Summary Form

Name:_____ Date:_____

School:_____ Grade:_____

I. Academic Performance

A. Achievement Test Scores (Most Recent Achievement Test Scores

	Test	Date	Standard Score	Local %ile
Verbal				
Numerical				
Non-verbal				

B. End of Year Grades for Past 2 Years

Subject	Year 1	Year 2	Subject	Year 1	Year 2
Reading			Music		
Mathematics			Art		
Language Arts/English			Foreign Language		
Social Studies			Other:		
Science			Other:		

II. Teacher Ratings [*Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS)*]

Scale	Score	Group Mean	Scale	Score	Group Mean
Learning			Technology		
Motivation			Artistic		
Creativity			Musical		
Leadership			Dramatic		
Reading			Communication I		
Mathematics			Communication II		
Science			Planning		

III. Alternative Pathways

	Scale	Summary of Strengths
Parent Rating		
Peer Rating		
Product Rating		

IV. Special Nominations

Teacher:_____ Grade:_____

Attach a brief description from the nominating teacher about why this student was nominated and enter the SRBCSS ratings in Part II above.

Appendix D Sample

Instruments

Student Product Assessment Form (SPAF)

Joseph S. Renzulli
Sally M. Reis

Rationale Underlying This Assessment Form

The purpose of this form is to guide your judgment in the qualitative assessment of various types of products developed by students in enrichment programs. In using the instrument three major considerations should always be kept in mind. First, the evaluation of more complex and creative types of products is always a function of human judgment. We do not think in terms of percentiles or standard scores when we evaluate paintings, architectural designs or the usefulness of a labor-saving device. We must consider these products in terms of our own values and certain characteristics that indicate the quality, esthetics, utility, and function of the overall contribution. In other words, we must trust our own judgment and learn to rely upon our guided subjective opinions when making assessments about complex products.

A second consideration relates to the individual worth of the product as a function of the student's age/grade level and experiential background. For example, a research project that reflects an advanced level investigation and subsequent product by a first grader might not be considered an equally advanced level of involvement on the part of a sixth grader. Similarly, the work of a youngster from a disadvantaged background must be considered in light of the student's overall educational experiences, opportunities and availability of advanced level resource persons, materials and equipment.

The third consideration relates to the most important purpose of any evaluation—student growth and improvement. This assessment instrument should be used to guide students toward excellence and therefore we strongly believe that it should be shared and discussed with students before the product is started. In other words, we believe the instrument should be reviewed with students during the early planning stages of the product. Students should have the opportunity to know and fully understand on what basis their final products will be assessed.

Instructions for Using the Assessment Form

Although most of the items included in the form relate directly to characteristics of the final product, it will be helpful if you also have access to any planning devices that have been used in the development of the product. Such planning devices might consist of logs, contracts, management plans, proposals or any other record keeping system. A planning device can help you to determine if pre-stated objectives have been met by comparing statements of objectives from the planning device with the final product. If such a planning device has not been utilized or is unavailable, you may want to request that the student complete a form that will provide you with the necessary background information. It is recommended that some type of planning device accompany all products that are submitted for rating. If it can be arranged, you may also want to interview the student who completed the product.

In using the *Student Product Assessment Form* it will sometimes be necessary for you to do some detective work! For example, in determining the diversity of resources, you may need to examine footnotes, bibliographies or references and materials listed on

the planning device. You may also want to have the student complete a self-evaluation form relating to the completed product. This form may help to assess task commitment and student interest.

The *Student Product Assessment Form* can be used in a variety of ways. Individual teachers, resource persons or subject matter specialists can evaluate products independently or collectively as members of a team. When two or more persons evaluate the same product independently, the average rating for each scale item can be calculated and entered on the Summary Form. When used in a research setting or formal evaluation situation, it is recommended that products be independently evaluated by three raters. One of these ratings should be completed by the teacher under whose direction the product was developed. A second form should be completed by a person who has familiarity with the subject matter area of the product. For example, a high school science teacher might be asked to rate the work of an elementary grade student who has completed a science-related product. The third rater might be someone who is independent of the school system or program in which the work was carried out.

Item Format

At first glance the items on the assessment form may seem to be long and complicated, but they are actually quite concise. Each item represents a single characteristic that is designed to focus your attention. The items are divided into the following three related parts:

1. **The Key Concept.** This concept is always present first and is printed in large type. It should serve to focus your attention on the main idea or characteristic being evaluated.
2. **The Item Description.** Following the Key Concept are one or more descriptive statements about how the characteristic might be reflected in the student's product. These statements are listed under the Key Concept.
3. **Examples.** In order to help clarify the meanings of the items, an actual example of students' work is provided. The examples are intended to elaborate upon the meaning of both the Key Concept and the Item Description. The examples are presented following each item description.

Important Note: The last item (No. 9) deals with an overall assessment of the product. In this case we have chosen a somewhat different format and examples have not been provided. When completing the ratings for Item No. 9 you should consider the product as a whole (globally) rather than evaluating its separate components in an analytic fashion.

Some of the items may appear to be unusually long or "detailish" for a rating scale but our purpose here is to improve the clarity and thus inter-rater reliability for the respective items. After you have used the scales a few times, you will probably only need to read the Key Concepts and Item Descriptions in order to refresh your memory about the meaning of an item. Research has shown inter-rater reliability is improved when items are more descriptive and when brief examples are provided in order to help clarify any misunderstanding that may exist on the parts of different raters.

Non-Applicable Items

Because of the difficulty of developing a single instrument that will be universally applicable to all types of products, there will occasionally be instances when some of the items do not apply to specific products. For example, in a creative writing project (poem, play, story) either the Level of Resources (No. 3) or Diversity of Resources (No. 4) might not apply if the student is writing directly from his/her own experiences. It should be emphasized however, that the non-applicable category should be used very rarely in most rating situations.

How to Rate Student Products

1. Fill out the information requested at the top of the Summary Sheet that accompanies the *Student Product Assessment Form*. A separate Summary Sheet should be filled out for each product that is evaluated.
2. Review the nine items on the *Student Product Assessment Form*. This review will help to give you a "mind set" for the things you will be looking for as you examine each product.
3. Examine the product by first doing a "quick overview" of the entire piece of work. Then do a careful and detailed examination of the product. Check (√) pages or places that you might want to reexamine and jot down brief notes and comments about any strengths, weaknesses or questions that occur as you review the product.
4. Turn to the first item on the *Student Product Assessment Form*. Read the Key Concept, Item Description and Example. Enter the number that best represents your assessment in the "Rating" column on the Summary Sheet. Enter only whole numbers. In other words, do not enter ratings of 3 1/2 or 2 1/4. On those rare occasions when you feel an item does not apply, please check the N/A column on the Summary Sheet. Please note that we have only included an N/A response option for Item 9a on the Overall Assessment.
5. Turn to the second item and repeat the above process. If you feel you cannot render a judgment immediately, skip the item and return to it at a later time. Upon completion of the assessment process, you should have entered a number (or a check in the N/A column) for all items on the Summary Sheet.
6. Any comments you would like to make about the product can be entered at the bottom of the Summary Sheet.

Student Product Assessment Form
Summary Sheet

Name(s)_____ Date _____
District_____ School _____

Teacher _____ Grade_____ Sex _____

Product (Title and/or Brief Description)_____

_____

Number of weeks students worked on product_____

Factors	Rating*	Not Applicable
1. Early Statement of Purpose	_____	_____
2. Problem Focusing	_____	_____
3. Level of Resources	_____	_____
4. Diversity of Resources	_____	_____
5. Appropriateness of Resources	_____	_____
6. Logic, Sequence and Transition	_____	_____
7. Action Orientation	_____	_____
8. Audience	_____	
9. Overall Assessment	_____	
A. Originality of the Idea	_____	_____
B. Achieved Objectives Stated in the Plan	_____	_____
C. Advanced Familiarity with the Subject	_____	_____
D. Quality Beyond Age/Grade Level	_____	_____
E. Care, Attention to Detail, etc	_____	_____
F. Time, Effort, Energy	_____	_____
G. Original Contribution	_____	_____

Comments:

Person completing this form: _____

*Rating Scales:

Factors 1-8:
- 5-To a great extent
- 3-Somewhat
- 1-To a limited extent

Factors 9A-9G:
- 5=Outstanding
- 4=Above average
- 3=Average
- 2=Below average
- 1=Poor

Student Product Assessment Form

Joseph S. Renzulli
Sally M. Reis

1. EARLY STATEMENT OF PURPOSE
   Is the purpose (theme, thesis, research question) readily apparent in the early stages of the student's product? In other words, did the student define the topic or problem in such a manner that a clear understanding about the nature of the product emerges shortly after a review of the material?

   For example, in a research project dealing with skunks of northwestern Connecticut completed by a first grade student, the overall purpose and scope of the product were readily apparent after reading the introductory paragraphs.

   5 4 3 2 1 N/A

   To a great extent — Somewhat — To a limited extent

2. PROBLEM FOCUSING
   Did the student focus or clearly define the topic so that it represents a relatively specific problem within a larger area of study?

   For example, a study of "Drama in Elizabethan England" would be more focused than "A Study of Drama."

   5 4 3 2 1 N/A

   To a great extent — Somewhat — To a limited extent

3. LEVEL OF RESOURCES
   Is there evidence that the student used resource materials or equipment that are more advanced, technical, or complex than materials ordinarily used by students at this age/grade level?

   For example, a sixth grade student utilized a nearby university library to locate information about the history of clowns in the twelfth through sixteenth century in the major European countries.

   5 4 3 2 1 N/A

   To a great extent — Somewhat — To a limited extent

4. DIVERSITY OF RESOURCES
   Has the student made an effort to use several different types of resource materials in the development of the product? Has the student used any of the following information sources in addition to the standard use of encyclopedias: textbooks, record/statistic books, biographies, how-to books, periodicals, films, videos, Internet resources, letters, phone calls, personal interviews, surveys or polls, catalogs and/or others?

   For example, a fourth grade student interested in the weapons and vehicles used in World War II read several adult-level books on this subject which included biographies, autobiographies, periodicals, and record books. He also conducted oral history interviews with local veterans of World War II, previewed films and videos about the period and collected letters from elderly citizens sent to them from their sons stationed overseas.

   5 4 3 2 1 N/A

   To a great extent — Somewhat — To a limited extent

5. APPROPRIATENESS OF RESOURCES
   Did the student select appropriate reference materials, resource persons, or equipment for the topic or area of study?

   For example, a student who was interested in why so much food is thrown away in the school cafeteria had to contact state officials to learn about state requirements and regulations which govern what must and can be served in public school cafeterias. With the aid of her teacher, she also had to locate resource books on how to design, conduct and analyze a survey.

   5 4 3 2 1 N/A

   To a great extent — Somewhat — To a limited extent

6. LOGIC, SEQUENCE, AND TRANSITION
   Does the product reflect a logical sequence of steps or events that ordinarily would be followed when carrying out an investigation in this area of study? Are the ideas presented clearly and logically and is there a smooth transition from one idea or subtopic to another?

   For example, a student decided to investigate whether or not a section of his city needs a new fire station with a salaried staff rather than the present volunteer staff. First the student needed to research different methods of investigative reporting such as appropriate interview skills. Next the student conducted interviews with both salaried and volunteer fire station staff. He then needed to learn about methods of survey design and reporting in order to analyze local resident opposition or support for the new fire station. After other logical steps in his research were completed, his accumulated findings led him to interviews with the Mayor and the Board of Safety in the city and then to several construction companies that specialized in bids on such buildings. His final product was an editorial in the local newspaper which reflected his research and conclusions.

   5 4 3 2 1 N/A

   To a great extent — Somewhat — To a limited extent

7. ACTION ORIENTATION
   Is it clear that the major goal of this study was for purposes other than merely reporting on or reproducing existing information, ideas, or knowledge? In other words, the student's purpose is clearly directed toward some kind of action (e.g., teaching ways to improve bicycle safety, presenting a lecture on salt pond life); some type of literary or artistic product (e.g., poem, painting, costume design); a scientific device or research study (e.g., building a robot, measuring plant growth as a function of controlled heat, light and moisture); or some type of leadership or managerial endeavor (e.g., editing a newspaper, producing/directing a movie).

   For example, a student decided to study the history of his city. After an extensive investigation, the student realized that other history books had been written about the city. He found, instead, that no one had ever isolated specific spots of historical significance in the city which were easily located and accessible. He began this task and decided to focus his research on producing an original historical walking tour of the city.

   5 4 3 2 1 N/A

   To a great extent — Somewhat — To a limited extent

8. AUDIENCE
   Is an appropriate audience specified or readily apparent in the product or *Management Plan*?

   For example, the student who researched the history of his city to produce an original walking tour presented his tour to the city council and the mayor. They, in turn, adopted it as the official walking tour of the city. It was reproduced in the city newspaper and distributed by the local historical society, library and given out to registered guests in the city's hotels and motels.

5	4	3	2	1	N/A
To a great extent		Somewhat		To a limited extent	

9. OVERALL ASSESSMENT
   Considering the product as a whole, provide a general rating for each of the following factors and mark the space provided to the right of the item:

SCALE

5 = Outstanding 4 = Above Average
3 = Average 2 = Below Average
1 = Poor

A. Originality of the idea. _____
B. Achieved objectives stated in plan. _____
C. Reflects advanced familiarity with the subject matter for a youngster of this age/grade level. _____
D. Reflects a level of quality beyond what is normally expected of a student of this age and grade. _____
E. Reflects care, attention to detail, and overall pride on the part of the student. _____
F. Reflects a commitment of time, effort and energy. _____
G. Reflects an original contribution for a youngster of this age/grade level. _____

ALPHA PROJECT PEER NOMINATION SIMULATION

ACTIVITY II Let's
Make-Believe

Introduction:

(Teacher) "I can tell you were 'thinking' very carefully about your answers. Let's play another game of make-believe. Let's begin all over again.

Let's make-believe one morning you woke up, climbed out of bed, and called for your mother, but she was not there. As a matter of fact, there were no 'big' people at your house at all. You decided to get dressed by yourself and come to school.

When you got to Room _____you saw all of your friends—and guess what?? They could not find no 'big' people at their homes either. In fact, there were no 'big' people at school, including me and (name anyone [adult] present in the room).

Let's think—you're all in Room _____and there are no 'big' people anywhere. Now, it's up to you to run things." (Teacher *must* elaborate here. She might mention certain jobs that have to be done for the welfare of community i.e., Who will deliver the mail? Who will be the President? What is a President?)

1. "We've been in school together for awhile and we've gotten to know each other very well. Now, in our make-believe world we need certain jobs to be done. Can you think of some jobs that that you children will have to do now since there are no 'big' people around?"

(Teacher makes a list on the blackboard. She should be prepared to include among responses the following categories [name three children for each category]:)

a) Organizer —(Describe this person as someone in Room _____who will be a leader to help us organize and run things.)
b) Fixer —(Someone in Room _____who likes to "make" of "fix" things.)
c) Artist —(Someone in Room _____who can make pretty things. Someone who can make up good stories.)
d) Inventor —(Someone in Room _____who is good at inventing and discovering things.)
e) Judge —(Someone in Room _____who will help us to settle arguments.)
f) Entertainer (Someone who likes to make-believe or act. Someone who likes to tell jokes. Someone who likes to sing.)

Teacher, please encourage a response from each child. If a child is shy, perhaps his/her survey could be done as an individual basis.

Please note any child who gives any unusual responses when asked to list jobs.

Developed by Victoria Rarder and Wayne Fulton, Seattle Public Schools. Used with permission.

Peer Referral Form

Teacher's Name ____

I'm going to ask you to think of your classmates in a different way than you usually do. Read the questions below and try to think of which child in your class fits best each question. Think of the boys and girls, quiet kids and noisy kids, best friends and those with whom you don't usually play. You may only put down one name for each question. You may leave a space blank. You can use the same name for more than one question. You may not use your teacher's name or names of other adults. Please use first and last name. You do not have to put your name down on this form, so you can be completely honest.

• •

1. What boy OR girl learns quickly, but doesn't speak up in class very often?

   ____

2. What girl OR boy will get interested in a project, and spend extra time and take pride in his or her work?

   ____

3. What boy OR girl is smart in school, but doesn't show off about it?

   ____

4. What girl OR boy is really good at making up dances?

   ____

5. What boy OR girl is really good at making up games?

   ____

6. What girl OR boy is really good at making up music?

_____

7. What boy OR girl is really good at making up stories?

_____

8. What girl OR boy is really good at making up pictures?

_____

9. What boy OR girl would you ask first if you needed any kind of help at school?

_____

10. What girl OR boy would you ask to come to your house to help you work on a project? (Pretend that there would be someone to drive that person to your house)

_____

Callahan, C. M., Hunsaker, S. L., Adam, C. M., Moore, S. D., & Bland, L. C. (1995). *Instruments used in the identification of gifted and talented students* (Research Monograph 95130). Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.

"Things My Child Likes to Do"

Cover Letter

TO: Parents of Students in the _____

FROM:

SUBJECT: Things My Child Likes to Do

One of the major goals of our overall school program is to provide each student with an opportunity to develop his or her individual strengths and creative thinking abilities. We also would like to provide your child with an opportunity to do some work in an area of study that is of personal interest to him or her. In other words, we would like to supplement our basic curriculum with experiences that are interesting, challenging, and enjoyable to individual children.

Although the work your child does in school gives us many opportunities to observe his or her strengths and interests, the activities that your child pursues at home can also help us to find ways for enriching his or her school program. For this reason, we are asking you to complete the attached questionnaire and return it to us at your earliest convenience.

The attached questionnaire contains 14 items. Each of the items deals with a general type of interest or activity that you may or may not have seen in your child. The interests or activities might be the result of school assignments, extracurricular, club activities such as—Girl Scouts or 4-H projects or other activities in which your child has developed an interest. To help clarify the 14 items, we have also included an example. Please keep in mind that each example is included only to help clarify the meaning of the item. In other words, you should remember that you are rating your child on each of the fourteen general items rather than the specific example. It will, of course, be very helpful if you can jot down specific examples of your child's interests or activities in the righthand column of the questionnaire.

If you should have any questions about this questionnaire, please contact the person whose name and telephone number are listed below. We very much appreciate your assistance in helping us to provide the best possible educational program for your child.

"Things My Child Likes to Do"

Your N:ome

Your Chi ldS N•me — — — — — — — — — — — — — — — — —

Child's Age

Chi ld's School

Today's Date — — — — — — — — —

	Seldom or !\evct	Sometimes	Quite Often•	AJmW Alway,,	Exa cs From Your ()l.,n Otid's Life
1. *My* child t\\11 spend more time and me.rgy tha n his/her agtrnalesona *Ed* hislhcrintm:Sl (R;,rexa.tl1)le: JO<B'\ is learning to $<."" nod spends c>Jcry fitt rrinute designing OCt\' dress p<tiOTIS and tryingtosew tv:m l\(ndf.)					
2. My child isa -sclf·S1311ex'' v.ho v.\"..lb well ooc.noo:in,g fe\.1. directionssnd liltle supervision. (R:.r-exsn1 e: Ar r wstc:hins; film 3bout mus:ical instrunlCMS,C'.«y bcpl to m3.ke *his* 0\1.'0 guilar from materil'ls be f<OOlld sround the ssmg:)					
3. My c!WI4S<UIIi311 penooal g«dsMdexpeCit10..,.re.U fromhis.M w<:rk. (f'Ofwn e: Nb'cyi\sht«!ton001<&\g a l'(llt:()1 fron.t $1)$'e machine p31ts even 1M¢me nothing aboutenginoesOt coosruction					
4. My.chid gttsso in,·oh ed •;''a projec.tthat he'she g;,·esup O'hetpleaMet it Ofdet t)WQC'kOO iL (A;¥exMlJ)le: is • 'filingbookabout1»s l<>"l l'stvstory Md *spen6s* ead\ nia;tat ex!fniningh i ictf rec«ds afl<.l doown«t-S— even					
5.:My ctikf <XlNJnues to v.-c::ck oncxo_ieaevenv.11en foced wJh let rydef«tts(fii<J Qow r¢UI$. (FOftx.."nlplt: After buil4inta m<:xki f()(:l::el. SlycOniinued to If)' toJOOllC-hil, de$ple st\'trttl failuttS (fii<J '"«ffih hn<.tin.s:s.")					
6. While: \\Wking on a JXUjcct (Md whal it"s finisbOO) *my* chil<l knows vflidl parts nrc J:,rood d11d whdt p;rts ncOO improvemrot. (Rlrc: mc: Afict boikfimg a scale: model of a lunar cily.Kenny r<·ah.td fhac there \\\"fOl'l enough solarcdlcctors tobeatal thehomeshe had buik.)					
7.).'fy <hild Wa"doer" wOOl:egilss projectands:bo\.\'Siinid!OO products or hisihcr wttk. (For example: MsJ)' bcsan wOI'tlng ooa puwet show rour momtrs agoland bas sin<:e boil• a stageandpoppctssnd h3s writtenssaip. Tool.':"row .....5fle·spre tig)lerplay t() .tlle.JYrJl.!)					

u;

"Things My Child Likes to Do"

	Seldom or iNever	Somctin1::s	(pte Often"'	Almost Always•	Exsmples Fran Your Q\\nC'hld's Ufe
8. Mychildsuuestsimaginslivc v.-sysddcing flings„even if the ixts sresorndmesimpractid. {r--or exsm ..If yo<U really wane to clean the refri_gerat:lf,v.t.y don·l v-e move it out.!idesnd 111 hose il do\.l.n- that wil deftoSI il. too.')					
9. WhoM m.y mild tells aboul som«hfn.g -t very mll9J31, he/t:hetx.pr tvm'hersdrby fft'borote gesrures,picues, Ot v'.Of'ds, (f'Otexampfe: 'ihe<Wyway ican ')'W how me OOUetdancu spun around is 11 Stand oo my tipt)esoo Ill<CD<lis!<.')					
10. My dWid us¢$ <XHtnaOft 111:1letis in weys II()(l)"picaly, el<pll:ted. (f«ee: 11 tltinga <lack Or'ear<Js 'lle" weg<>C{trn.pin:J. If k rainsy.-e can use t1\('1fli0S1M.._firc and if it<!Jywe ctnt play a game ound lhe ctunpfire:')					
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12. My child lites to "Pay with ideas."often making up situatiOOS \\tl,ich probaN yv.ill notocc.ur. (Focexam c: "I wondc:r"M'hud happen if asc«mtiss found awaylokill aJJ inscc.tbcn went ahc<d and d:Kl. il")					
13. Mydlildcln findshumc:c'in situuioos<<cvmt.s hal nee ob\•iO'USly runny 10 most dl.ild:ren bis:.bersge. (Forexsmpe: "II wasreallyrunny th:st31« outcoach show00 usa movie on'gfoundssfety,bespr.lned bis3ntte."bilelining us up I0£0 OO:k1oc1:m")					
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Appendix E

Goals and Skills Related to Two Types of Giftedness

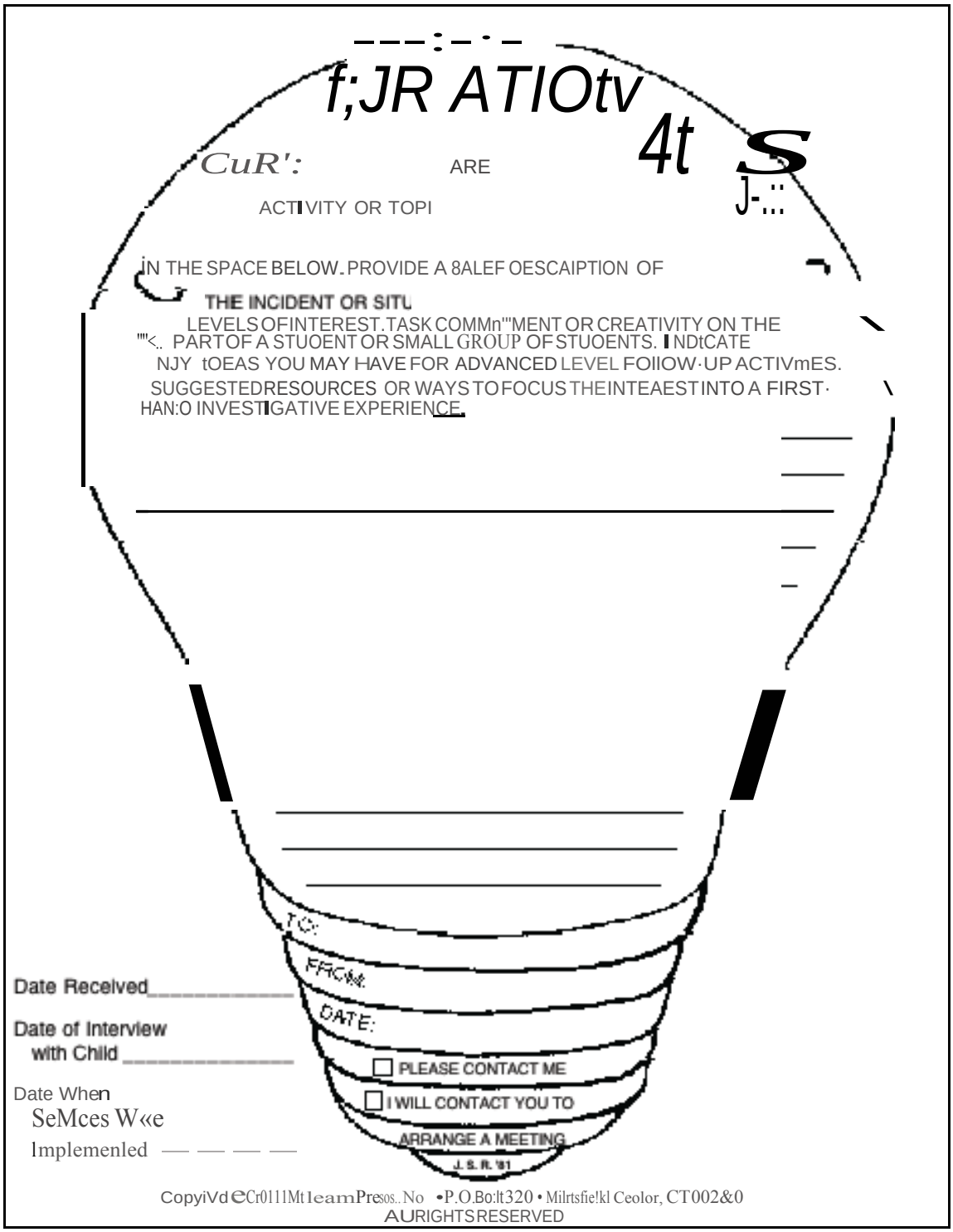
Goals and Skills Related to Two Types of Giftedness

High Achieving Giftedness	Creative Productive Giftedness
Goals For Promoting Each Type of Giftedness	
Increased academic achievement	Inventors, imaginative writers
Higher test scores	Creative designers in the sciences, arts, technology, and communication
Technically proficient professionals and skilled workers	Innovative leaders, managers, and entrepreneurs
Skills Developed By Attending To Each Type of Giftedness	
Advanced knowledge acquisition and mastery of content	Creative thinking skills, curiosity, and tolerance for ambiguity
Advanced language skills in verbal comprehension and oral and written expression	Problem finding and focusing skills; ability to generate original research questions and creative projects
Higher level thinking skills	Investigative research skills such as data gathering, analysis, interpretation, and reporting
Advanced math skills in creative problem solving, analytical thinking, mathematical verbal and written discourse	Application of knowledge and skills to real-world problem solving situations Understanding of joyful work and satisfaction in work well-done
Abstract thinking skills	Development of creative products, solutions, and presentations
Metacognitive skills	Development of a sense of impact-on-audience skills
Organizing and categorizing skills	Risk taking and adventurous thinking skills
Understanding complexity	Development of creative self-efficacy*
Large working memory	Development of vision, sense of destiny, and ability to make a difference in areas of personal commitment
	Training in creative productivity

*The ability to take on and accomplish progressively more complex and challenging tasks that require original, action-oriented approaches.

Appendix F

Action Information Message Elementary
Action Information Message Secondary



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ACTION INFORMATION MESSAGE -

TO: _____ Talent Pool Class Teacher

_____ Program Coordinator

_____ Other

From: ———————— Student (print name)

———————— Teacher (print name)

———————— Other

General Curriculum Area: ———————

_____

Investigation or Study: ———————————————————

_____

_____

In the space below, provide a brief description of evidence of high level of task commitment or creativity on the part of a student or small group of students. Indicate *any* ideas you may have for advanced level follow-up activities, suggest resources or ways to focus the interest into a first hand investigation experience.

Date Received ———————

Date of Interview ———————

Mentor located _____ Yes _____ No

Name of person who will be responsible for facilitating this Type III

This form is prepared on 3-part NCR paper and can be purchased in sets of 100 from Creative Learning Press, Inc.
Actual size 11" x 8½".

Research Monograph

The National Research Center on the Gifted and Talented
University of Connecticut
2131 Hillside Road Unit 3007
Storrs, CT 06269-3007
www.gifted.uconn.edu

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NRC G/T

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