Introduction to Section II: The Teaching–Learning Models

A number of teaching–learning models can be used separately or combined as a curriculum development framework in a program for gifted students. The models have different strengths and weaknesses as well as differing degrees of specificity in the strategies used in implementation. They also are based on different assumptions and philosophical foundations. How is a teacher to choose which of these or which combinations of these will guide classroom efforts? How can parental values, school restraints, and student characteristics all be considered in developing a curriculum? Section II is designed to answer these questions.

The suggestions in this section are directed toward those who are concerned with the design of learning experiences for gifted children, regardless of the program's administrative structure. Of course, the administrative arrangements are a consideration in the type of curriculum to develop, but this section assumes that the structure is present already or that it will be developed to facilitate the success of the program.

Several factors influence curriculum design. They relate to the (a) model (i.e., philosophy, objectives, strengths, and weaknesses), (b) teacher (philosophy, personality, skills, prior experiences), (c) setting (administrative structure of the gifted program, parental philosophy, the school system, the individual school, the regular curriculum), and (d) students (their common and unique characteristics). In some way, the curriculum must reflect the intersection of all these factors. Is this an impossible task? The task, although not impossible, certainly is a complex one. The initial process of development must be comprehensive. It must involve knowledgeable key individuals; be developed in a systematic, inductive manner; and include a built-in process for review and a mechanism for change.

The chapters in this section provide answers to four basic questions about the design of curricula in programs for gifted students:

1. What are the factors that must be considered in the development of a curriculum?
2. How does the educator take these factors into account in developing the curriculum?

3. How does the teacher assess the effectiveness of the design and make the necessary changes?
4. How does the teacher develop a program that meets the needs of each individual child?

In effect, the focus of the section is on process—the process of curriculum development. Although it does supply some of the material needed to develop a program through suggestions of factors that should be considered or resources that are available, the section seeks to provide a step-by-step procedure. The end result is not specified, but if the process is followed, the curriculum should be a real intersection of the characteristics and constraints of the model(s), teacher, setting, and students.

Before beginning the section, however, some introductory comments regarding the authors' assumptions are in order. We believe that some philosophical and theoretical framework *must* serve as the basis for curriculum modifications for the gifted. A program made up of a collection of games and activities or a conglomeration of bits and pieces from various, often incompatible, sources does not constitute a qualitatively different curriculum for the gifted. Although the general principles discussed in Section I provide guidelines—a framework—for curriculum development, they do not offer enough specific teaching strategies or adequate theoretical frameworks by themselves for implementing the kind of program needed for gifted children.

Several theoretical or structural teaching–learning models are in some way appropriate for teaching gifted students. Many of these approaches are in use in programs for the gifted. These approaches do make a difference in what is learned and how well it is learned. Because each model has its own particular focus and its strengths and weaknesses for certain purposes, a comprehensive curriculum will use the models in such a way that they complement each other. The best curriculum probably will combine more than one of the models because none is comprehensive enough by itself. On the other hand, trying to use them all no doubt would result in a strange collection of bits and pieces and a very frazzled teacher.

Children are a powerful part of the process. They react differently and unpredictably to each of the approaches as well as to day-to-day activities. To increase the probability of finding something that works with each pupil, a teacher needs a wide range and good variety of tricks. Mastering several of these approaches thus enhances a teacher's effectiveness.

The purpose of this section is not to provide an in-depth discussion of each of the existing models. That is left to other publications (Maker & Schiever, 2005). However, to assist the reader who is unfamiliar with any of these models, the following section provides a brief orientation to 12 of the most commonly used, and most potentially useful, teaching–learning models. We chose these models for several reasons. The first reason is a concern for their demonstrated or potential success with gifted children. Each principle described in Section I is a consideration in this selection process. The second reason is their widespread use in gifted programs. The third reason is variety and complementarity.

No one model addresses all the content, process, product, and learning environment changes suggested in Section I. No one model will be attractive to all teachers or fit every situation. For these and related reasons, we chose models that can be combined in a variety of ways to enhance their effectiveness and increase the chances that educators will find a particular combination that will fit their preferred styles of teaching.

Teaching–Learning Models

Unless otherwise noted, the information on the teaching–learning models in this section comes from Maker and Schiever (2005).

George T. Betts and Jolene Kercher: The *Autonomous Learner Model*

The *Autonomous Learner Model* (ALM; Betts, 1985; Betts & Kercher, 1999) was first developed for gifted and talented students at the secondary level. Over time, and with modifications, it has been used for all learners, from kindergarten through 12th grade.

The ALM has five dimensions: Orientation, Individual Development, Enrichment, Seminars, and In-Depth Study. These dimensions are based on the original underlying principles, which were developed through consultation with experts, reviews of literature, and the experiences of learners, teachers, administrators, and parents. The model is designed to integrate the emotional, social, and cognitive aspects of learning and to develop autonomous learners.

Each dimension of the ALM has one or more standards that define or describe what skills, abilities, or knowledge the learner will acquire or

master while working within the dimension. These standards also guide the learning activities and experiences encountered during exploration of the dimension.

The ALM includes or is easily adaptable to the recommended curriculum modifications for gifted learners. The use of specific process models and the organization of skill development activities or investigations around complex and abstract concepts and generalizations provide for the learning needs of gifted students.

A significant advantage of the ALM is that it was designed by teachers specifically for gifted, creative students in secondary schools. The downward extension to kindergarten brings this advantage to younger students as well. The emphasis on student independence and choice is key, and students not only choose their topics for investigations, seminars, and in-depth study but also make decisions about culminating activities and presentations and plan, implement, and evaluate these activities. The model can be incorporated into the structure of secondary school schedules and includes procedures for cooperative planning with content teachers and community resource persons. The ALM is a flexible model, allowing for individual student and institutional needs and variables.

Benjamin Bloom and David Krathwohl: Taxonomies of Cognitive and Affective Educational Objectives

One of the most frequently used models for the development of higher level thinking is Bloom's Taxonomy (Bloom, 1956). Many programs for the gifted, if not based entirely on this model, at least use it in some way. Although both the cognitive and affective taxonomies were developed by essentially the same group of educators and psychologists, the cognitive one usually is referred to as Bloom's Taxonomy and the affective one as Krathwohl's Taxonomy (Krathwohl, Bloom, & Masia, 1964).

The purpose of the taxonomies is to provide a set of criteria that can be used to classify educational objectives according to the level of complexity of the thinking required. They are generic in the sense that they are applicable to any academic subject area and any level of instruction from kindergarten through adult education (including graduate school). Although their focus and levels are different, the underlying assumptions, process of development, and use are similar.

At the time of development of these taxonomies, no one anticipated the widespread use of the classifications to develop teaching activities.

However, they provide a simple, somewhat easy-to-learn structure for developing teaching–learning activities that takes students through a sequential process in the development of a concept or learning of relationships. If the major assumption of the taxonomies is valid—that each higher level includes and depends on the behaviors from the lower levels—students who have been led through the process systematically should be able to think or behave more effectively at the higher levels.

The cognitive taxonomy consists of six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. The affective taxonomy consists of five levels: receiving or attending, responding, valuing, organization, and characterization by a value complex. Although the taxonomies are viewed as parts of two different domains, human behavior, especially at the higher levels, is impossible to separate into two different components.

The taxonomies of educational objectives cannot be defended as a total approach to curriculum development for gifted children. However, they can be used as one aspect of a program, particularly to show the relative emphasis on higher thinking versus lower thinking and feeling processes in programs for gifted students. The associated uses—evaluation and development of teacher-made tests, evaluation of standardized tests, and construction of more quantifiable objectives—all are appropriate even if curriculum development is not based on the taxonomies.

Jerome Bruner: *Basic Structure of a Discipline*

Of all the teaching–learning models used in programs for the gifted, Bruner's (1960) is perhaps the most philosophical. In fact, his is not actually a framework but rather a way of approaching the development of a framework. Bruner's ideas have contributed to many of the other models, as well as to the authors' overall view of curricular modifications appropriate for the gifted.

One assumption formed the basis for most of Bruner's ideas: "Intellectual activity anywhere is the same, whether at the frontier of knowledge or in a third-grade classroom." The difference is in degree, not in kind, and the best way to learn history is by behaving the way a historian would. Thus, instead of focusing only on the conclusions in a field of inquiry, educators should look also at the inquiry itself. Most of Bruner's ideas follow from this basic conviction. A person more nearly approximates an inquirer if the basic ideas of that discipline are understood and are of

concern, if concepts are revisited as understanding increases, if there is a balance between intuition and analysis, and if there is a long-term commitment to intellectual activity and the pursuit of knowledge.

A theme underlying Bruner's approach is that the aim in education should be to teach the basic structure of academic disciplines in such a way that children can understand the structure. This basic structure consists of certain concepts (e.g., biological tropisms in science, revolution in social studies, supply and demand in economics, and commutation, distribution, and association in mathematics) and the important relationships between them. Such concepts and relationships, when understood, enable the learner to understand most of the phenomena in that discipline. Understanding the basic structure means that the individual not only has learned a specific thing but also has learned a model for understanding other things like it that may be encountered. A phenomenon is recognized as a specific instance of a more general case. Carefully developed understandings should permit the student to recognize the limits of applicability of the generalizations.

Based on what is known from the available research, the basic structure approach combined with teaching methods emphasizing inquiry and discovery rather than didactic ones can be highly successful with gifted students. Although the teaching of structure and abstract concepts is difficult for the teacher, materials and comprehensive curricula are available as aids. It seems that with Bruner's approach, the advantages greatly outweigh the disadvantages.

C. June Maker and Shirley W. Schiever: The DISCOVER Curriculum Model

DISCOVER (Discovering Intellectual Strengths and Capabilities while Observing Varied Ethnic Responses) is an ongoing program of research and development that began in 1987. The program grew out of a felt need to develop a culture-fair assessment of competencies and to develop curriculum to enhance and expand those competencies.

Gardner's (1983) definition of intelligence as problem solving to resolve *real* problems or difficulties within cultural contexts and in multiple areas of intellectual abilities is key to the DISCOVER model. In addition, Schiever and Maker (1991, 1997, 2003) expanded the work of early researchers Getzels and Csikszentmihalyi (1967, 1976), resulting in a problem-solving continuum with six problem types ranging from clearly

stated problems with one correct answer to fuzzy, open-ended, ill-defined real-life problems with no known method for solving and no known solution (Maker & Schiever, 2005).

The DISCOVER Assessment (Maker, 2001) is typically administered to an entire classroom of students who are at tables in groups of four or five. A trained observer is assigned to each table, and observers rotate after each set of problems. The assessment varies by grade level: prekindergarten, K–2, 3–5, 6–8, and 9–12. The Behavior Checklists completed by observers include problem-solving behaviors and information on products for the following intelligences: linguistic, spatial, logical–mathematical, interpersonal, and intrapersonal. Four problem sets are included: Spatial Artistic, Spatial Analytical, Oral Linguistic, and Math. Immediately following the assessment, the observers meet to complete the observation and debriefing tasks. Scores are determined in the context of the students' setting and within the competency level of an activity (as compared to their peer group). DISCOVER is extremely effective for students from backgrounds that are outside the mainstream because the tasks are not all dependent on language facility. In addition, not only are students rated on their problem-solving skills within numerous domains but also the assessment is based on their performance compared to those peers with whom they are most closely associated.

The DISCOVER curriculum model grew out of the needs and characteristics of children as indicated by the DISCOVER Assessment. Its essential components include the solving of varied problem types, multiple intelligence group activities, choice, hands-on learning, access to the tools of the multiple intelligences, interdisciplinary themes, integration of the arts, and integration of the cultures and languages of the students.

The few modifications recommended for gifted students (Maker, 1982a; Maker & Nielson, 1996) that are *not* inherent in the DISCOVER curriculum model can be incorporated easily. The acceptance of student diversity, the study of people and methods of the disciplines, and the requirement of evidence of reasoning are natural inclusions that follow the tenets of the foundations of the DISCOVER model.

Advantages of the DISCOVER curriculum model include its research base, the accommodation of a variety of types of giftedness, and the fact that it was developed to include the national curriculum standards. The variety within DISCOVER makes for happy students, busy but fulfilled teachers, and parents who are thrilled with the learning challenges their children are facing and mastering.

The disadvantages stem from school personnel who are not open to new approaches or strategies, the standardized testing scourge, the cost of using the DISCOVER Assessment, teacher-evaluation instruments and standards (amount of factual information memorized by students), and the inclusion of the arts, which are seen as an expensive frill by some. In addition, learning takes time, and learning in new ways may take *more* time, at least at first. Those who make the educational decisions must be willing to allow time for a seed to grow and not jump to pronounce it a weed to be eliminated at first appearance of its *difference.*

Sidney J. Parnes: *Creative Problem Solving*

One approach widely used in programs for the gifted is the *Creative Problem Solving* model developed by Sidney J. Parnes, founder of the Creative Problem Solving Institutes held at the State University of New York at Buffalo (SUNY) and other locations around the country. Influenced greatly by the work of Alex Osborn (1963) in applying imagination to the practical problems encountered in the business and professional worlds, Parnes (1977) attempted to develop the most comprehensive process possible for stimulating the use of imagination in practical situations. He used his own applied research on the development of creative thinking in the program at SUNY as well as the applied and theoretical research of others to come up with a process that is comprehensive, theoretically sound, and, above all, effective. He continually modified this process as new information became available. The institutes are attended yearly by many of the most widely known researchers and theorists in creativity development as well as by individuals just beginning to be interested in their own or others' progress.

Creative Problem Solving provides a structured method of approaching problems in an imaginative way. It is different from other methods in its emphasis on the generation of a variety of alternatives before selecting or implementing a solution. In each of the six steps of the process—mess finding, data finding, problem finding, idea finding, solution finding, and acceptance finding—the problem solver defers judgment during ideation or generation of alternatives to avoid inhibiting even the wildest possibilities, which may turn out to be the best ideas. Judgment is exercised at a more appropriate time. The purposes of the model are twofold: (a) to provide a sequential process that will enable an individual to work from

a mess to arrive at a creative, innovative, or effective solution, and (b) to enhance the person's overall creative behavior.

Extensive research has been conducted regarding the effectiveness of *Creative Problem Solving*, resulting in hard data that support its effectiveness. The model also demonstrates the most versatility, based on its successful practical application in business, government, the health care professions, and education. However, as a *total* approach to curriculum development for the gifted, *Creative Problem Solving* is difficult to justify as qualitatively different and/or comprehensive. Fortunately, it can be combined easily with other, different approaches in ways that can minimize or eliminate the disadvantages of lack of comprehensiveness.

Problem Based Learning

Problem Based Learning (PBL) was first used in medical schools in the 1970s after medical educators in Canada at McMaster University realized that what students were learning in medical school was consistently and markedly different from the skills and knowledge used by practicing physicians. This led to an innovative teaching model wherein students learn in an environment similar to a physician's office, where ambiguous and complex situations arise and where asking good questions is a matter of life and death. This question-asking dynamic results in physicians' being willing to change possible diagnoses rather than trying to fit patients' symptoms to memorized facts.

The elements of PBL include the following: (a) an ill-structured problem, (b) substantive content, (c) student apprenticeship, and (d) self-directed learning. When developing curriculum using PBL, educators must ensure that the problems are structured so that students encounter worthy bodies of knowledge, the problems are central to the field of study, and the curriculum is designed to meet specific educational goals. The original goals of PBL were to (a) provide students an extensive and flexible base of knowledge; (b) help students to develop effective problem-solving skills; (c) help students to develop self-directed, lifelong learning skills; and (d) inspire students to become intrinsically motivated to learn (Barrows & Kelson, 1995, cited in Hmelo & Ferrari, 1997).

On the basis of her own work and the curriculum goals and critical components of PBL, S. A. Gallagher (1997) developed the following PBL goals:

1. fostering problem-solving skills
2. enhancing acquisition, retention, and use of knowledge
3. improving students' self-directed learning skills
4. developing students' intrinsic interest in subject matter and, subsequently, students' motivation to learn
5. developing students' capacity to see problems from multidisciplinary viewpoints, integrating information from many different sources
6. facilitating the development of effective collaborative learning practices
7. emphasizing for students the importance of learning for understanding rather than for recall
8. improving flexible thought and the capacity to adapt to change

The fit of these goals and those of most programs for gifted students is obvious. However, reaching these goals requires a major transformation of most curriculum and instructional practices in schools today.

The assumptions underlying PBL include those of the constructivist movement in education, such as the effectiveness of hands-on learning, the importance of substantive and relevant subject matter, and the intrinsic interest within real-life problems and situations. The model is composed of four elements: (a) an ill-structured problem, (b) substantive content, (c) student apprenticeship, and (d) self-directed learning. PBL is an excellent structure for forward-thinking curriculum developed for gifted students.

Joseph S. Renzulli: The *Enrichment Triad Model;* Joseph S. Renzulli and Sally Reis: The *Schoolwide Enrichment Model*

Several teaching–learning models have been developed for education and used in programs for the gifted, but a popular one designed specifically for teaching gifted children is Renzulli's (1977) *Enrichment Triad Model* (ETM). Educators of the gifted as well as critics of special provisions for such pupils have long been concerned about providing qualitatively

different learning experiences for these children (see Chapter 1). Renzulli presented an enrichment model that can be used as a guide in developing defensible and qualitatively different programs for the gifted. This model provides for moving students through awareness, the learning of process, and the development of a product using three different but interrelated types of learning activities.

The ETM has three types of enrichment:

Type I:	General Exploratory Activities
Type II:	Group Training Activities
Type III:	Individual and Small-Group Investigations of Real Problems

The first two are considered appropriate for all learners; however, they also are very important in the overall enrichment of gifted and talented students for two important reasons. First, they deal with strategies for expanding student interests and developing thinking and feeling processes, which are necessary elements in any enrichment program. Second, they represent logical input and support systems for Type III enrichment activity, which is the one uniquely appropriate for the gifted.

Type III enrichment is the major focus of this model because it is the element considered the most important for gifted learners. Renzulli recommended that approximately half of the time that gifted students spend in enrichment activities be in these types of experiences. Type III enrichment consists of activities in which the students become actual investigators of a real problem or topic by using the methods of scientists in the field, even if they are not as sophisticated. The students must spend enough time with Type I and Type II activities to develop independence skills necessary for conducting a real study before starting Type III activities.

According to Renzulli, students must have three basic characteristics to benefit from his model: (a) above-average intelligence, (b) above-average creativity, and (c) task commitment (motivation, persistence). A definite interaction between these three characteristics results in superior performance.

The ETM does have its drawbacks, mainly because of the tendency of educators to adopt it blindly without considering its philosophical basis and the requirements for implementation. However, teachers can implement it appropriately, giving careful consideration to its philosophical

base, its specific strategies, and how these aspects fit into an individual's unique situation.

Because, in general, gifted students spend the majority of their time in regular classrooms, Renzulli and Reis (1985) adapted and expanded the ETM to create the *Schoolwide Enrichment Model* (SEM). The three major goals of the SEM provide challenging learning experiences for all students, as well as accommodating the needs of gifted students. The goals are as follows:

- to maintain and expand a continuum of special services that will challenge students with demonstrated superior performance or the potential for superior performance, in any and all aspects of the school and extracurricular program;
- to infuse into the general education program a broad range of activities for high-end learning that will (a) challenge all students to perform at advanced levels and (b) allow teachers to determine which students should be given extended opportunities, resources, and encouragement in particular areas where superior interest and performance are demonstrated; and
- to preserve and protect the positions of gifted education specialists and any other specialized personnel necessary for carrying out the first two goals. (Renzulli & Reis, 2002, p. 9)

Assumptions underlying the models include that (a) all students should master certain basic competencies; (b) gifted students are capable of mastering one or more subjects in the regular curriculum at a faster pace than average students; (c) student interests and learning styles must be respected; (d) enrichment activities may be integrated with regular curriculum, but they must be above and beyond the scope of the regular curriculum; and (e) enrichment experiences may take place in almost any setting and may involve one or many students (Renzulli, 1977). An additional assumption of the SEM is that *all* students can benefit from Type I and Type II activities (Renzulli & Reis, 2002).

Extensive research underlies the development of the ETM and the SEM, and many studies of the ETM have supported its effectiveness (Reis & Renzulli, 1982). In addition, studies of the SEM have shown certain aspects, such as teaching students creative problem solving as a Type II activity, to be effective. Olenchak and Renzulli (1989) found the use of

the SEM resulted in teachers and students having more positive attitudes, and Olenchak (1990) found that students enrolled in schools that used the SEM had significantly more positive attitudes toward learning than did comparable students in schools that did not use the SEM.

Advantages of the two models include their research base and the fact that the ETM was developed specifically for gifted students. The SEM has many positive effects on the regular curriculum (Renzulli & Reis, 2002), and it is effective in schools with widely varied socioeconomic levels and school organizational patterns (Olenchak, 1988; Olenchak & Renzulli, 1989).

Shlomo Sharan and Yael Sharan: The *Group Investigations Model*

The *Group Investigations Model* is a student-centered approach to cooperative learning based on John Dewey's (1938, 1902/1943) philosophy that intellectual development is fostered by active experience, inquiry in a social setting, and reflective thinking. It also has theoretical support from research in cognitive development, social-learning theory, and group processes. The model is designed to incorporate students' interests, abilities, and experiences in planning small-group activities. Peer collaboration and student choice of topics and projects are emphasized. The students form groups on the basis of friendship or interest in a topic or project or to meet specific classroom goals. Groups are flexible, with students participating in several during a school term, and students are free to leave a group in the early stages of a project.

Major goals of this model include nurturing democratic participation, developing student skills in different social roles, assigning tasks so that students do not duplicate each other's work, and developing effective social skills, including dealing with differences of opinion or conflict.

Advantages of the *Group Investigations Model* include the benefits of diverse groups of students working together to reach a common goal, such as valuing other students of diverse racial and ethnic origins and breaking down cultural stereotypes. Allowing students to self-select topics, groups, and projects empowers the students, which enhances the learning process. The model is particularly useful within populations of varied backgrounds, culture, and ethnicity.

Four broad dimensions guide the *Group Investigations Model*: (a) topics must be broad and general, containing a number of related subtopics;

(b) subtopics must be sufficiently challenging to ensure a meaningful subdivision of labor and interdependence among group members; (c) frequent communication within and between groups is essential as students plan, gather data, analyze data, and integrate their work with that of others; and (d) the learning environment must stimulate interaction, search for knowledge, and communication while fostering student independence.

The *Group Investigations Model* was designed to be used in classrooms with multiple levels of abilities and learning needs. However, research has supported the importance of collaboration with peers, and higher achieving students in mixed-ability cooperative learning groups receive only limited benefit. The use of the model for gifted students allows children of similar abilities to work together and to make the greater gains in achievement and cognitive development that are goals of special learning experiences for those students. Children benefit by learning from each other because they are matched in ability and knowledge, no authority relationship exists between them, and they pool their efforts to solve a problem or reach understanding.

Hilda Taba: *Hilda Taba Teaching Strategies* Program

One of the most promising process models for use with gifted children is the generic teaching strategies program developed by Hilda Taba. Her series of four sequential questioning techniques resulted from almost 15 years of research on children's thinking and how it could be developed (Taba, 1964, 1966). Few of the approaches used frequently in this field can provide similar evidence of their effectiveness in producing the growth in abstract reasoning that educators cite as their goal. Yet only scattered programs for the gifted employ the Taba strategies. Perhaps this spotty use results from the fact that much of the literature is unavailable or difficult to find or from the lack of an advocate—one who sees its potential and pushes for its acceptance. Unfortunately, Schiever's 1991 book that includes comprehensive information on the development and use of the strategies is out of print. More important, perhaps, Taba's insistence that all children can develop abstract reasoning skills if assimilation and accommodation activities are paced appropriately has led educators of the gifted to dismiss the teaching strategies developed by someone with this attitude as inappropriate for their pupils.

Regardless of the reasons for only scattered inclusion of the Taba strategies in current programs, more than an adequate basis in theory and

research justify their use alone or in combination with other approaches in the education of gifted students.

The *Hilda Taba Teaching Strategies* are structured, generic methods in which the teacher leads students through a series of sequential intellectual tasks by asking them open-ended but focused questions. The four strategies—concept development, interpretation of data, application of generalizations, and resolution of conflict (also called interpretation of feelings, attitudes, and values)—although not designed to be hierarchical or serial, can be used sequentially because they build on each other. Within each strategy, however, a definite sequence exists for the questions, with a theoretical and practical justification for the order.

Although Taba envisioned the strategies to be used as frameworks for guided classroom discussions, their sound theoretical and research background support their use as a structure for curriculum. Instructional units can be developed using one or more of the strategies as a guide, as well as class or small-group activities. Parts of the strategies frequently creep into the planning and instruction of teachers who have been trained to use the techniques. One school district has used the concept development strategy to bring teachers to a conceptual understanding of *essential understandings* (W. Leader, personal communication, February 8, 2008).

Learning how to use the *Hilda Taba Teaching Strategies* program (Institute for Staff Development, 1971a, 1971b) is not simple. The strategies are complicated. Subtle differences between an inappropriate and an appropriate teacher question or behavior can throw a whole discussion off track. Demonstrations, practice with critiques from experienced leaders, classroom tryouts, and self-analysis are necessary components in the learning process. Many teachers feel that it has taken them years to perfect their use of the Taba strategies. However, they also attest to the effectiveness of the strategies when implemented appropriately and to the richness they perceive as they gain a deeper understanding of the processes.

Although the Taba model is primarily a process approach, because of Taba's (1962, 1964) comprehensive approach to curriculum development and implementation, the model provides for many of the learning needs of gifted students. Curriculum content developed using the strategies will be abstract, complex, and organized for economy of learning. The open-endedness inherent in the model demands higher levels of thinking and discovery learning, and the student-centeredness addresses several of the recommended learning environment modifications. Overall, the strategies offer many advantages when planning for the gifted learner.

Belle Wallace and Harvey B. Adams: *Thinking Actively in a Social Context*

The TASC, the acronym for *Thinking Actively in a Social Context*, was developed in South Africa to address concerns regarding underachievement, dropout rates, and the standard instructional practice of rote memorization in KwaZulu-Natal schools. It is a multiphase problem-solving model that includes basic skills and tools for effective thinking. The model is based on worldwide research on how children learn and best teaching practices. It includes 10 rigorous but flexible principles to guide teachers as they develop curriculum for diverse learners.

As a beginning project in 1991, the aims of the TASC included the following (Adams & Wallace, 1991):

1. improve attitudes and motivation for learning
2. improve student self-concepts
3. help students learn to take on and solve problems in all facets of their lives
4. improve student learning and achievement
5. provide students opportunities to learn and practice decision making and leadership roles
6. prepare students to be successful citizens
7. help disadvantaged students to assume societal roles previously never envisioned

The four elements of the TASC are defined as follows:

- *Thinking:* Effective thinking is necessary to achieve learning.
- *Actively:* Thinking must be practiced, and knowledge about thinking must be applied.
- *Social:* Thoughts and ideas are operational when they are communicated to, or shared with, another person.
- *Context:* Thinking always occurs in a context, and the purpose, meaning, or situation underlying an action or idea should be understood (van der Horst, 2000).

The model includes the four basic thinking categories of knowledge, attitudes and motivation, metacognition, and skills and processes. The TASC framework has three levels: a range of Basic Thinking Skills that all learners need; Effective Thinking Tools, which are more complex thinking strategies; and the Problem Solving Framework, in which the first two levels are embedded.

The extended aims of the TASC reveal how its use for gifted students provides for many of their learning needs. The extended program aims to develop the following: (a) attitudes that include an active approach to thinking and problem solving, avoidance of impulsivity, perseverance, an internal locus of control, and a positive self-image; (b) thinking skills such as the ability to make comparisons and categorize, and stable spatial and temporal relationships; (c) tools for effective thinking and problem-solving strategies; and (d) metacognitive strategies and the skill to know when to use these strategies (Adams & Wallace, 1991). Therefore, the inclusion of the TASC as one of the models in curriculum for gifted students is appropriate.

Combining the Models

As can be discerned from these descriptions, a number of teaching–learning models are available for use, singly or combined, in programs for the gifted. These models vary in their purposes as well as in the content, process, product, and learning environment modifications appropriate for the gifted that they address directly. For example, the *Basic Structure of a Discipline* modifies content through suggesting that it be organized around basic concepts, as do DISCOVER and the *Hilda Taba Teaching Strategies*. The *Basic Structure of a Discipline* also addresses the process of discovery, although the major modifications are in the area of content. The cognitive and affective taxonomies, on the other hand, provide modifications mainly in the process area—and in especially one aspect of process, the development of higher levels of thinking.

The same is true of the *Enrichment Triad Model* and the *Schoolwide Enrichment Model*. Although they offer a comprehensive framework for an overall approach, the educator must add other process models such as the cognitive and affective taxonomies, DISCOVER, *Problem Based Learning*, *Thinking Actively in a Social Context*, or the *Hilda Taba Teaching Strategies* to provide a structure for the development of Type II activities.

Some similarities also should be noted. Most of the models provide for variety of content and several process modifications. In. fact, many of them make very similar process changes because of their emphasis on higher levels of thinking and on development of creative or divergent thought processes. Overall, the fewest models ensure the organization of content for learning value, the study of people, and the requirement of evidence of reasoning. When choosing and combining models, educators must pay attention to all modifications required to address the learning needs of the students, as indicated by their characteristics.

Whether these models are combined or used separately, their similarities and differences must be considered. In other words, they must be combined so that the total curriculum is comprehensive; however, the degree of overlap also must be considered. Placing undue emphasis on process skills or on one process skill is not desirable simply because more methods and materials are available for use. The chapters that follow provide a suggested process to follow in the development of a comprehensive curriculum that is qualitatively different and appropriate for gifted children.