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ABSTRACT

The state of Oregon has mandated special educational programming or services for K-12 gifted and talented children to begin by the 1991-92 school year. Because financial support is lacking, most instruction of gifted and talented students will occur within regular classrooms. This monograph addresses the problem of providing appropriate instruction for young (kindergarten through grade 2) gifted children in the regular classroom. In chapter 1, a case study of a first-grade child and his drawings underlines the need for appropriate educational experiences for young, gifted children. In chapter 2, definitions of "giftedness" are discussed, along with the characteristics of young, bright children. Chapter 3 focuses on identification, and chapter 4 suggests ways to assess educational levels and rates of learning as required by the mandate. In chapter 5, program options and models are discussed. Chapter 6 offers four major ways to differentiate the curriculum. Chapter 7 focuses on the importance of interests to young children. Chapter 8 suggests how to organize for instruction, with an emphasis on thematic teaching and learning centers. Chapter 9 considers the needs of the whole child in instruction--the emotional, physical, social, and intuitive aspects as well as the cognitive. In chapter 10, parents are offered ideas on providing a responsive environment and on being a school advocate. The appendices include the Oregon Mandate, a list of publishers for the gifted, summaries of conceptual models, and a curriculum criteria checklist. (45 references) (MLH)

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Meeting the Mandate

LeoNora M. Cohen, Ann C. Burgess, and Tara K. Busick

SPECIAL ISSUE

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PREFACE

This monograph was developed to help teachers and administrators in Oregon schools deal with the new mandate for talented and gifted children that goes into effect the 1991-92 school year. This mandate specifies that students identified as gifted must be provided with appropriate educational programs or services based on their assessed levels and accelerated rates of learning in the various school subject areas. The mandate therefore has major implications for the regular classroom. This Bulletin is intended to provide directions for staff development designed for regular classroom teachers of young children.

A pull-out program for a few hours per week will not be sufficient to meet the mandate requirements, because gifted children are gifted all the time and their instruction in basic subject areas must be modified to meet their learning needs. The authors are not saying that options such as resource rooms or itinerant teachers are not useful or necessary. Such enrichment can be very valuable, but it is not a required part of the mandate.

Little information in the field is available to help the administrator or regular classroom teacher deal with young, bright children. This Bulletin on teaching kindergarten and primary gifted children in the regular classroom is therefore useful and timely. Because the first teachers of the young child are parents and because parents are critical to the success of programs for the gifted, a chapter on parenting has been included. In fact, parents may find other aspects of this monograph useful as well.

The authors believe that the basic principles used in educating gifted and talented children are sound educational principles for educating all children. Although intellectually and academically gifted children will go farther, faster, and with a higher level of mastery, all children can learn according to these principles. The mandate for the gifted in Oregon may therefore have an additional value in bringing about changes that benefit every child.

The five simple rules below, the major framework in every good program for educating gifted children, are useful in planning appropriate TAG programs and would be beneficial for all children:

1. Gifted children should be viewed as individuals, not as THE GIFTED, each of whom has a unique pattern of abilities and interests that need to be nurtured. *(All children should be viewed as individuals with gifts and interests to be found and nurtured, not just as having deficiencies).*
2. Gifted children should spend at least part of their time with others like them by ability and/or by interest. This avoids the serious social-emotional problems of isolation and feeling different that plague gifted children. *(All children should have the chance to interact with others of their choice. Such interactions are crucial to learning and instrumental in becoming cooperative citizens).*
3. Gifted children should work in basic skill areas such as reading and math to their level of ability. That is, they should move as fast and as far as they are able. Boredom with unchallenging work begets cycles of frustration and puts gifted children at risk for dropping out, just as work that is too difficult causes children of lesser ability to drop out. If a basal reading series is used, at least two series (or alternatives) should be available to allow for this form of natural acceleration. *(All children should be*

allowed to work at their level of ability.)

4. Gifted children should be allowed to investigate in depth areas in which they are greatly interested and should be encouraged to become producers of new information, rather than consuming what others have done. Rather than writing a research report on cats, for example, a fourth grader might keep a careful log for six weeks of the development of her cat's litter of kittens. Each day she might note the weight, behaviors, temperament, and eating habits of each kitten. She will learn infinitely more from such an experience, she will need to read about cats and kittens for a background to help her decide what to observe, and she will add something new to the field about her cat's kittens. *(All children should have the opportunity to engage deeply in areas of great interest and to develop a sense of competence.)*
5. To optimize their potential, gifted children need counseling and guidance to optimize their potential, whether from a counselor or from supportive, caring teachers. *(All children need to have counseling and facilitation to maximize their potential.)*

In an attempt to meet the needs of concerned teachers, administrators, and parents who were seeking ideas and materials on serving young gifted children, OATAG, the Oregon Association for Talented and Gifted, requested that a book be developed. OATAG is concerned with the special educational needs of gifted children and serves as an advocate on their behalf.

Members of OATAG (parents, teachers, administrators, and other concerned individuals) receive a journal *(The Different Drummer*, four issues per year), other publications (such as this one), resource assistance in forming and maintaining a local support group, scholarship eligibility for children of members for summer programs for the gifted, conferences, and information regarding state and federal legislative issues of importance to gifted education. The OATAG address is: P.O. Box 1703, Beaverton, OR 97075. Phone: (503) 629-0163.

LeoNora Cohen and two of her students, Ann Burgess and Tara Busick took up the challenge of writing this Bulletin. Nora Cohen is assistant professor of talented and gifted education at the University of Oregon. She is president-elect of OATAG and assumes the presidency in June 1990. She has worked with gifted children since 1967 as a teacher, program administrator (Nora initiated the gifted program for Philadelphia Public School, serving 6,000 children with 130 teachers), parent, researcher, and professor. She has published widely, has developed (with colleagues) many of the state technical papers on the gifted, and has done research on the beginnings of giftedness through longitudinal studies of young children's interests.

Ann Burgess is elementary liaison supervisor for the Teacher Training Program at the University of Oregon. She has taught primary and other age children for twelve years, including children in Iran, United Arab Emirates, remote Alaska, as well as Eugene. She completed her master's in TAG education at the University of Oregon and is beginning her Ph.D. program.

Tara Busick is currently a graduate student in early childhood education at the University of Oregon. She became interested in gifted education through the Super Summer program offered to gifted children at the University of Oregon. As a classroom teacher, Tara hopes that this Bulletin will be useful to classroom teachers in meeting the needs of all students.

These authors have contributed this work to benefit OATAG.

Philip K. Piele
Executive Secretary

CONTENTS

INTRODUCTION

The state of Oregon has mandated special educational programming or services for K-12 gifted and talented children to begin by the 1991-92 school year. (For details about the Oregon mandate for education of the gifted and talented, see Appendix A.) The mandate specifies that gifted and talented students receive instruction on a level and at a rate commensurate with their ability. No additional state funds are being allocated to develop and support new instructional programs, however.

Because of the lack of financial support, much of the instruction of gifted and talented students will occur within regular classrooms under the guidance of the regular classroom teachers. In addition, the nature of the mandate requires that modification of instruction be in the subjects taught in the regular classroom. This Bulletin addresses the problem of how to provide appropriate instruction for young (kindergarten through grade 2) gifted children in the regular classroom.

Providing appropriate instruction for these children is problematic for several reasons. One reason is that, although colleges of education require at least one course on exceptional learners, such courses deal primarily with learning disabled or handicapped children; they usually offer little instruction about the able learner. In fact, few states or colleges require any specific coursework on the gifted (Mitchell and Erickson 1978). Many teachers may be inadequately prepared to teach young gifted children, and are justifiably apprehensive about complying with the state mandate without receiving additional curricula and/or training.

In addition to lack of teacher training in the area of talented and gifted education, only a handful of books have been written about the young gifted child, and none of these deals directly with ways to modify specific instruction in the regular classroom (Karnes 1983; Whitmore 1986; Roedell, Jackson, and Robinson 1980). Most textbooks on the gifted deal primarily with serving gifted students in the upper elementary grades or above. Articles on young gifted children focus on issues that have limited application or relevance to the regular classroom (McHardy 1983; Karnes, Shwedel and Linnemayer 1982). Other writers who deal with provision of programs in the regular classroom (Cohen 1987c) provide general ideas, but do not offer specific suggestions for working with young gifted children.

Requiring the regular classroom teacher to orchestrate an entirely separate program for each gifted child in his or her room is unrealistic. Many teachers already feel the required basic curriculum places a heavy burden on their time and energy (Cohen 1987c).

This Bulletin presents a format that the teacher can use to provide for the special needs of the gifted children within the context of the regular classroom.

In chapter 1, a case study of a first-grade child focuses on the need for appropriate educational experiences for young, gifted children. In chapter 2, definitions of *giftedness* are discussed and the characteristics of young, bright children described. Chapter 3 focuses on identification. Chapter 4 suggests ways to assess educational levels and rates of learning for the purpose of providing appropriate instruction as required by the mandate.

In chapter 5, options and models for providing programs in the classroom, school, district, and out of the district are discussed. Chapter 6 offers four major ways to differentiate the curriculum. Chapter 7 focuses on the importance of interests to young children. Chapter 8 dwells on how to organize for instruction with a particular emphasis on thematic teaching and on learning centers. Chapter 9 considers the needs of the whole child in instruction—the emotional, physical, social, and intuitive aspects as well as the cognitive.

Finally, in chapter 10, on parenting, ideas are offered to parents on providing a responsive environment and on being an advocate in the schools.

The appendices include the Oregon mandate, a list of publishers for the gifted, conceptual models, and other useful materials related to this text.

Chapter 1

ROBBIE'S STORY: A CASE STUDY OF EMPOWERING THE GIFTED

When a young gifted child is not given the support and nurturing needed for development of potential in the classroom, all too often such a child is at risk for underachievement, failure, and perhaps even dropping out of the educational system. Whitmore (1987) notes that some 70 percent of the gifted are underachievers. She states that the major cause of underachievement among the gifted is an educational mismatch between the child's expectations and those of the school.

Very young gifted children go to school full of excitment about learning and with the anticipation of finding out answers to all their important questions. Sometimes even within the first few weeks of school, the mismatch becomes evident.

In the following paragraphs, we learn about Robbie, a gifted first grader, whose first encounter with school exemplifies the problem. It was written by his mother, Susan Kennedy Stangland.

Look closely at the two self-portraits in figures 1.1 and 1.2. Picture A was drawn in September, as a new school year began, and Picture B was drawn in June, as the same school year was ending. First graders created personal portraits as gifts for their parents showing what a happy and successful year each child had experienced. This child who once lunged forward into new adventures with curiosity and joy very clearly was changed by his first year in school, sadly, an unsuccessful one. Upon presentation of his gift to his parents, he asked why he had to return to school after summer vacation ended.

Within eight short months, this gifted, bright-eyed, and creative child shriveled on the public educational vine. In his innocence and naivete, this first grader has been aole to articulate graphically the malaise that is affecting our educational system today.

Our children enter the system alert, happy, wide-eyed, excited, expectant, curious, and full of promise. They are centered as indivduals (name clearly emblazoned across the chest), they have a gleam in their eyes, they miss nothing (attention to details: shoe laces and eye lashes), and they have sunshine in their hearts. Their world is full of flowers and optimism. They are ready to grab the future in all it technicolor glory.

However, if they don't find a responsive, nurturing, and supportive environment, they exit the system dulled, detached, exhausted, unenthusiastic, wilted, hollow-eyed, out of focus, and discontented. They are no longer centered (name scrawled along the side of the head), and they no longer see themselves as whole and well-integrated (the body is missing; only a simple sketch of a head is depicted). They have a "grin and bear it" smile that is far removed from the one they possessed when they started school. The technicolor has been taken from their world.

For some, this process is slow and unapparent; the student merely senses something isn't as it should be, or that something is missing. For others, particularly the gifted, the process is swift and deadly and the student becomes a behavior problem, an underachiever, or a dropout. This may be due to their unusual awareness and sensitivity (Clark 1988, Piechowski 1979, Whitmore 1987).

The fragility of promise is so clearly characterized by these two portraits. Yet the educational process ultimately is responsible for the care and nurturing of this promise. This child has definitely experienced a mismatch between his environment and his needs. He has developed feelings of lack of control, fear of failure, and low self-esteem (Whitemore 1988), and he will be hampered from fulfilling his promise. That is a loss for him and others like him as well as a loss for all of us.

These two illustrations are more than a self-portrait of a six year old. They represent what has happened and what continues to happen to those

gifted children who do not find their niche within the current system of education. What I personally find so disturbing is that this could very well be *my* self-portrait thirty-five years ago. It is timeless in its image and message. And because it speaks to at least two generations, this suggests that little has occurred to change the attitudes that perpetuate this kind of portraiture. That's not to say the public and the educational experts aren't concerned and haven't spent these many years thinking, testing, hypothesizing, and implementing curricula to improve the situation. What it suggests is that we've been skirting around the issue instead of getting to the heart of it.

Our educational system is sadly and profoundly off track. The focus is no longer on the student. The focus is on achievement, "right" answers, nationally competitive test scores, awards, and surface accomplishments. All these things have trampled the very precious thing we all want to promote: the wonder and joy of learning! We've lost sight of what is the driving force of the educational business: students. How to get back on track and how to re-inspire the very children the system exists to serve is the challenge before us today. Our focus, first and foremost, needs to be on the individual student's needs.

But how to do this? The answer: We need to allow our gifted students to be *entrepreneurs*. Entrepreneurs are individuals who have the courage and energy to organize, manage, and assume the risks of their own enterprises. They identify problems, generate ideas, implement a plan, and take action. They don't waste time bogged down in "studies." Entrepreneurs know they don't have all the answers and they constantly search for input from those involved with them. Since innovation can only occur in an atmosphere of acceptance, entrepreneurs require autonomy. They are sensitive to others' needs and they respect the individual and an individual's efforts. They are hindered by bureaucracy and thrive on accountability. And they utilize the diversity around them while sharing their strengths and expertise (Peters 1982).

Principals, teachers, and most especially, gifted children must have the right to generate magnificent ideas, to take meaningful risks, and to be accountable for their choices. We must allow risks to be taken on a daily basis: the kinds of risks that inspire thinking, creativity, and problem-solving. Individual schools need to become autonomous. They need the flexibility to allow each student the opportunity to generate the best they can for themselves, and ultimately, for all of us.

These two self-portraits demonstrate the dramatic changes that occurred in one very special student's life. Most school districts believe they offer excellent programs and personnel, and most do. Perhaps what these portraits are telling us is that programs and personnel are not where the true thrust of education should be. Instead of telling the child what, when, and how he will learn, we need to let him set the pace, give the direction, and provide the leadership in his enterprise of learning. As adults and trained professionals, we can provide the superstructure and have the tools available with which to build, but we must give the student, especially the gifted student, the openness and the flexibility to be the risk-taker and the architect.

By looking at the entire system of education and seeing that a complete overhaul is in order, we will be benefitting everyone: the stressed teachers, the burdened administrators, the confused parents, and the weary students. Once we all agree that all children are entitled to an education that serves their needs, and once the structure, policies, and attitudes are in place to accomplish this, not only will we finally be addressing the needs of our promising children, but we will have won the battle we're now waging for the rights of the gifted and talented in our homes and in our schools.

FIGURE 1.1: ROBBIE'S SELF-PORTRAIT AT BEGINNING OF FIRST GRADE (PICTURE A)

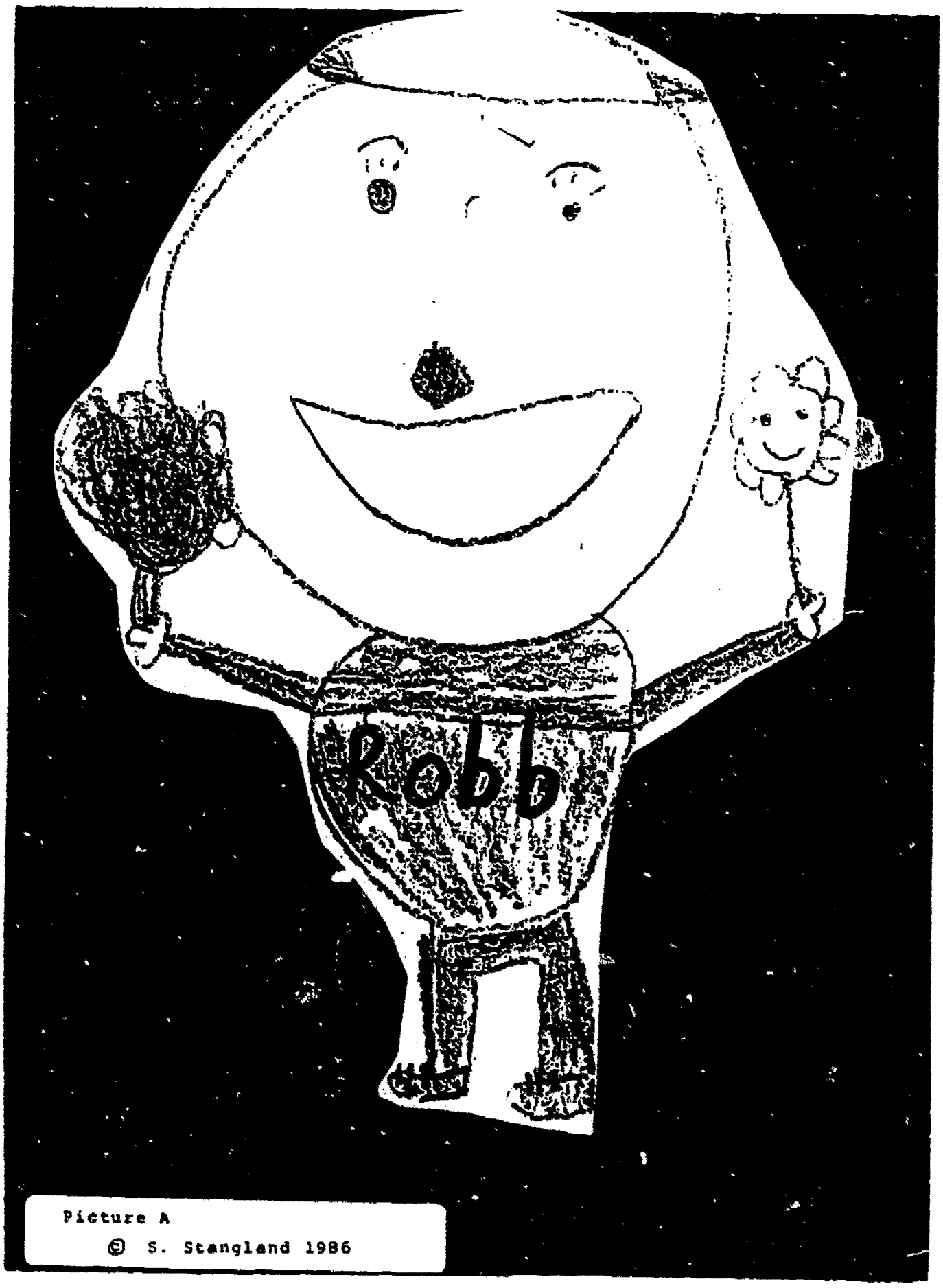
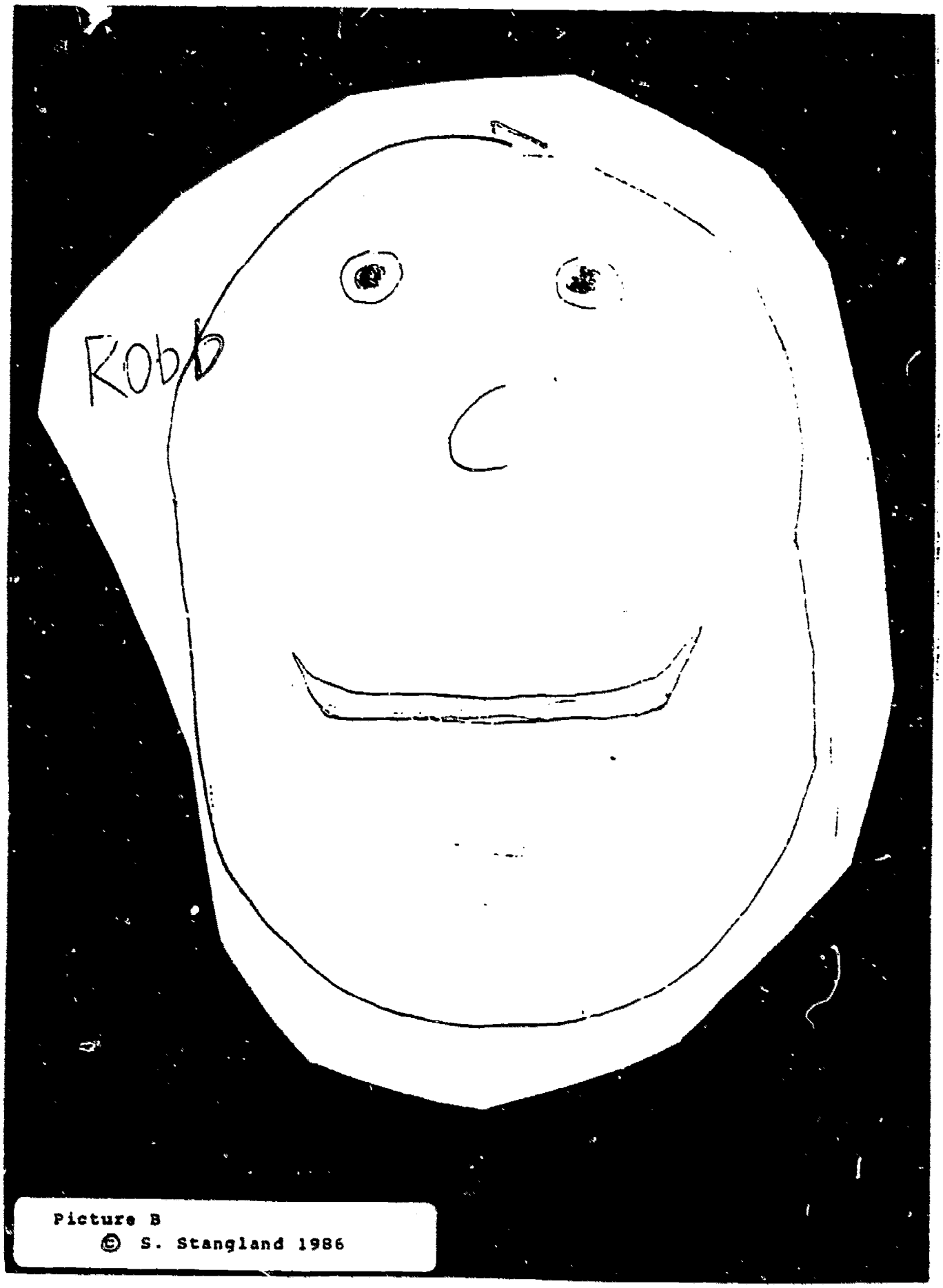


FIGURE 1.2: ROBBIE'S SELF-PORTRAIT AT END OF FIRST GRADE (PICTURE B)



Chapter 2

DEFINITIONS AND CHARACTERISTICS

DEFINITIONS

Educators view giftedness in a variety of ways. There appears to be much disagreement and lack of understanding of what is meant by *gifted and talented*. Richert, Alvino, and McDonell (1982) concluded that there is a "labyrinth of confusion" about what giftedness is. While research continues to probe the nature of giftedness, some sense of what is meant by *gifted* is necessary for the educator to identify and meet the needs of this population.

Federal Definition

The U.S. Federal definition states,

> Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and services beyond those normally provided by the regular school program in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated achievement and/or potential in any of the following areas:
>
> 1. General intellectual aptitude
> 2. Specific academic aptitude
> 3. Creative or productive thinking
> 4. Leadership ability
> 5. Visual and performing arts (Marland 1978)

State Definition

Oregon defines the *gifted* as "those children who require special educational programs or services, or both, beyond those normally provided by the regular school program" (ORS 343.395 [7]). As noted in Appendix A, Oregon has decided that two of the federal categories *must* be served—the intellectually gifted and the academically talented. Serving the other three groups mentioned in the federal definition is optional in Oregon.

Definitions of the Young Gifted Learner

Since standardized testing procedures may be inappropriate for young gifted children (Hagen 1989; Karnes 1983; Roedell, Jackson, and Robinson 1980), additional definitional information is needed. Karnes (1983) offers further clarification of the characteristics of young gifted children:

> *Intellectually gifted:* The child is alert, observant and curious about a great many things. The child demonstrates exceptional ability to retain and apply knowledge. Consequently the child knows about things of which peers are unaware. The child learns easily and readily, applies knowledge to practical situations, and conveys ideas to others easily. The child becomes absorbed in activity and is a good problem solver.
>
> *Academically gifted:* The child demonstrates uncommon abilities in specific academic areas and has a longer than average attention span in the area of talent.
>
> *Reading:* The child often chooses reading as an activity. He/she uses a large vocabulary, demonstrates exceptional understanding of material and shows unusual interest in reading or writing symbols and words.
>
> *Math:* The child has a long attention span for math-related activities. She/he demonstrates skill and enjoyment of activities such as counting, ordering, and measuring and indicates an advanced understanding of mathematical relationships.
>
> *Science:* The child is at home with and understands abstract concepts such as cause and effect, life cycles, etc. He/she inquires about the nature of things and experiments to discover how things work.

It is imperative that teachers closely observe children who show such abilities or potential. Only through a variety of assessment techniques such as testing, observations, and analysis of student products can teachers successfully match instruction to the child. Further discussion of the characteristics of young gifted children follows.

CHARACTERISTICS

The diverse abilities, needs, and interests of young gifted children render them difficult to characterize. Gifted children should be viewed as individuals, not as a collective group. Each child has a unique pattern of abilities and interests that need to be nurtured (Cohen 1989b; Roedell, Jackson, and Robinson 1980). Nonetheless, young gifted children do share important characteristics that can provide some general clues about how to meet their educational needs.

The young gifted child demonstrates outstanding competence or mastery of some things. He or she is an active learner who seeks knowledge with keen interest. A careful observer may notice the child working at the same problem again and again. Each time the child may approach the problem from a new perspective. Persistence, problem-solving ability, divergent thinking, and intense interest in a topic are characteristics typical of gifted children (Renzulli 1977a). The gifted child often exhibits the following behavioral characteristics:

1. *A rich memory storehouse.* For example, the child may relate specific, detailed information about insects. The child's level of expertise on this subject far exceeds age peers.
2. *Intense curiosity.* For example, the child may be fascinated by the power exhibited in volcanoes. He may seek to answer questions he has about volcanoes in all his work and play. In this way, his curiosity regulates his learning experiences (Cohen 1989a).
3. *Reflectivity.* The child reconsiders past experiences and evaluates them. For example, a young girl thinks about her disappointment about not receiving the ice cream cone she wanted. She evaluates her actions leading up to the denial and mentally rehearses how to proceed the next time she asks for an ice cream cone.
4. *Openness to experiences.* For example, the child may be so impressed by meeting and talking with a police detective, she is launched on a study of forensics.
5. *Ability to make relationships, generalize, and abstract.* For example, the child understands relationships such as sunlight to growth in green plants. Exploration of such abstract concepts as photosynthesis may be appropriate for very young gifted learners.
6. *Manipulation of symbols and symbol systems.* For example, the child makes up secret codes and sends messages to his friends, enjoys making up and solving fraction problems, or wants to learn other alphabets or numbering systems.
7. *Ease and speed of prolem-solving.* For example, the child may master math problems of much greater complexity than age peers. She may also raise questions and deal with problems around major world issues, for example, nuclear disarmament, or environmental pollution (Karnes 1983, Newland 1976).
8. *Intense, early pursuit of interests.* For example, the child wants to know everything she can about native Americans, reading (or being read to) every book available, making garments, dwellings, and food, employing the artwork, values, ways of living (Cohen 1987e, 1988a and b).

In summary, the intellectually and academically gifted learn more readily and retain what they learn better. They have larger vocabularies, have longer attention spans in their areas of interest, and are more proficient problem-solvers and abstract thinkers. They are highly observant, curious, and persistent pursuers of knowledge. They are often creative, independent, and competitive. They are likely to be self-motivated learners who resist overt teacher direction and drill (Karnes 1983). In addition, they commonly exhibit a steep slope trajectory in their learning, that is, once they catch on, the learning is very rapid (Cohen 1989b). For example, a gifted child may not begin reading until two months into first grade, but once she gets the idea, she reads at a third-grade level by March of that year. (See Appendix B for Observations of Gifted Young Children by Kathleen Callicrate.)

IMPLICATIONS

It is important that the educator consider two key characteristics of young gifted children:

1. *Gifted students may not develop uniformly in every subject.* An academically gifted student may, for example, be gifted in science and yet be unable to read well. Similarly, gaps in learning may occur within a gifted student's field of strength. For example, a first grader who reads three years above grade level may be weak in

phonic analysis. Assessment must be specific and occur periodically to adequately determine the gifted learner's educational needs.

2. *Gifted children often exhibit a level of competence equivalent to that of children several years older than they are, and their processes and products may be unique* (Karnes 1983). That is, their thinking may not be simply advanced for their age, but qualitatively different. Therefore, it is inadvisable to simply place these children in a higher grade level for a particular subject without a more complete understanding of their individual learning patterns.

Assessment of educational levels, rates of learning, and areas of interest are therefore necessary to provide educational programs, services, and materials appropriate for each child (Cohen 1989b). How to assess levels and rates of learning will be discussed in chapter 4. That chapter deals with how awareness of the characteristics discussed in this chapter can aid in identifying young gifted children.

Chapter 3

IDENTIFICATION OF YOUNG GIFTED CHILDREN

To maximize the potential of gifted students, it is critical to identify these children at a very young age whenever possible. There is a clear reduction of potential, especially among impoverished or culturally different populations, by the time children are in the third grade. If such children can be identified early and provided with appropriate support, their potential may be sustained or enhanced. As Robinson, Roedell, and Jackson (1979) note, "Superior abilities that are not nurtured will not develop, and the resulting waste is inestimable."

Research has also shown that gifted children placed in special programs compared to those who remained in regular classes gain an average of two years as compared to one.

PROBLEMS IN IDENTIFYING YOUNG GIFTED CHILDREN

The process of identifying young children as gifted is fraught with difficulties. Problems in identifying kindergarten and primary gifted children include the following:

1. Lack of appropriate group test information—many schools do not begin testing programs until grade 2 or higher.
2. Less reliable test data—young children's scores on tests are less reliable predictors of giftedness than tests given later.
3. Greater time needed to test k-1 children because children should be tested in small groups. At the kindergarten level, three to five children per group is a maximum.
4. Choice of instruments is more limited than for older children.
5. Parents do not generally start voicing concerns about their children's giftedness until about fourth grade.
6. Specialists in gifted education are not usually trained to work with young gifted children and therefore generally do not begin programs earlier than fourth grade.
7. Classroom teachers need intensive training to be able to identify bright children. Little such training is available. (Ehrlich 1986; Hagen 1989; Karnes and Johnson 1986; Karnes, Shwedel, and Kemp 1985)

IDENTIFICATION SYSTEM REQUISITES

Any identification system for young gifted children, according to Robinson, Roedell, and Jackson (1979), must:

1. Include opportunities for children with advanced abilities to display their skills. Typical school readiness tests may not have a high enough ceiling for such display.
2. Allow for the inconsistency that frequently characterizes young children's performance. Some aspects of tests are more likely to be interesting to a child than others. Look for what a child *can do*.
3. Include a detailed parent report in addition to data collected through testing. This should include specific, non-interpretive questions, such as At what age could your child identify all colors? Karnes and Johnson (1986) suggest that both parents be asked to fill out separate forms and results compared in order to improve reliability. Ehrlich (1986) found that traits most often cited by parents that correlate the highest with the Stanford-Binet were: "Reading ability, insight, exceptional vocabulary, thinking ability, capacity for symbolic thought, sensitivity, and early development."

Roedell, Jackson, and Robinson (1980) describe a "best performance notion." They found that it was beneficial to periodically reassess children's performance in a wide range of areas, such as spatial and figural thinking or verbal or mathematical reasoning, even if performance was lower than required for eligibility to a gifted program if other indicators suggested giftedness. Sometimes, a young child's performance increases dramatically when provided with appropriate classroom support.

Karnes and Johnson (1986) believe that identification of talents and gifts in young children should be an ongoing process, often taking weeks or months, in which gifts and talents become evident and easily observable.

Ehrlich (1986) reports that it is possible to identify gifted children from populations other than the dominant culture if there is awareness of potential difficulties and a deliberate search is made. She notes that there are no shortcuts in identifying such children, and that multiple criteria and individual standardized tests administered and interpreted by knowledgeable and trained individuals are requisites.

USE OF MULTIPLE CRITERIA

Experts agree that case studies involving multiple criteria coupled with individually administered tests of intelligence are most appropriate, as heterogeneity characterizes young gifted children. Usually this involves (1) a parent questionnaire, (2) teacher observation after training (using anecdotal notes or a structured checklist), (3) analysis of school records, (4) analysis of child's products, and (5) formal testing. There is no such thing as a typical gifted child (Clewett 1984; Johnson 1983; Karnes and Johnson 1986; Robinson, Roedell, and Jackson 1979; Shwedel and Stoneburner 1983). In addition, gifted behaviors may be evident in only one or several areas; therefore, evidence must be sought in many areas of endeavor (Karnes and Johnson 1986).

Assume They Are All Gifted

One approach that avoids the difficulty of selecting and labeling young gifted children is to assume that they are all gifted (Salzer 1986). This approach focuses on enhancing the strengths young children possess—what they *can* do—rather than concentrating on their deficits—what they *cannot* do. However, Oregon requires school districts to identify and serve those youngsters who are mentally and/or academically gifted. Therefore, in this state, a systematic search must be made, children must be identified, their parents notified, and their needs met. If children who fail to meet the state criteria are provided services, parents must understand that their children have not been formally identified as gifted.

STANDARDIZED MEASURING INSTRUMENTS

Oregon requires that children be identified through standardized tests of mental ability and/or tests of academic aptitude or achievement. Such standardized tests are reasonably accurate measures of ability. However, the drawbacks of such instruments are their limited scope (for example, tests of mental ability have a rather narrow view of what intelligence is), possible social and cultural bias, and reduced reliability for very young children. This is why the state requires that other behavioral data be collected. Whichever instrument is selected, be sure to use the most recent standardization that most accurately reflects current population statistics.

Individual Intelligence Tests

Most experts prefer individual I.Q. tests over other types of testing instruments for identifying young gifted children (Ehrlich 1986; Hagen 1989; Johnson 1983; Roedell, Jackson, and Robinson 1980). According to Roedell, Jackson, and Robinson (1980), the Stanford-Binet Intelligence Scale is considered the most suitable measure for identifying very young gifted children, because "it covers both the age and performance ranges necessary for evaluating the ability of intellectually advanced young children."

The problem with the WPPSI test is its limited range, which makes testing of first-grade gifted children difficult (Evans and Richmond 1976). For example, Stephen, a kindergartner, topped out on the WPPSI in block design, but attained an age level of sixteen on the same test using the WISC-R designed for older children.

Roedell, Jackson, and Robinson (1980) advocate using the WISC-R rather than the WPPSI, especially if the child has reached the ceiling level. However, they suggest that because the Stanford-Binet is weighted heavily on verbal abilities, measures of

nonverbal or spatial-perceptual reasoning ability should also be used. They suggest using subtests (block design and mazes) in the Performance subtest of the WISC-R in terms of test age. They also recommend a test of auditory short-term memory and suggest using the McCarthy Scales Numerical Memory subtest. They believe a high score on such a test may indicate a superior ability to absorb new experiences.

Again, for children under age six, no single test should ever serve as the sole indicator upon which to base educational decisions. Even individually administered tests of intelligence are insufficient to determine whether a child is gifted or talented, especially if the child is not a member of the dominant culture (Karnes and Johnson 1986; Roedell, Jackson, and Robinson 1980).

The Seattle Project found "ample evidence that even the most comprehensive battery of tests, administered by the most skillful testers, may not provide a good estimate of a young child's capabilities" (Robinson, Roedell, and Jackson 1979).

In spite of these limitations, the primary drawback of individually administered tests is the high cost that results from the need for these tests to be administered by highly trained psychometricians or psychologists. Recommended instruments include:

1. **Stanford-Binet Intelligence Scale (S-B), Third Revision**

   Authors: Lewis M. Terman and others

   Publisher: Riverside Publishing Company

   Ages: 2 and over

   Administered by: Highly trained examiners only

   Time for Administration: 30-90 minutes

   Score: A single Intelligence Quotient (IQ) Score (m=100, s.d.=16) and a mental age score (MA)

   Assesses: General Intelligence—a composite of verbal ability, math reasoning, memory, visual discrimination, and general information.

   Use in Gifted Identification: Measures general intellectual ability. Short form versions can be used. Use the MA rather than IQ as selection criteria (Roedell, Jackson, and Robinson 1980).

   Advantages: Widely respected by psychologists and educators as an accurate predictor of school performance.

   Disadvantages: Results are reported in one single score. Does not distinguish an individual's strengths and weaknesses. Time and expense involved in the individual administration by a psychologist. Weighted heavily on verbal abilities.

2. **Kauffman Assessment Battery for Children (K-ABC)**

   Authors: Alan and Nadeen L. Kaufman

   Publisher: American Guidance Service

   Ages: 2.5-12.5

   Administered by: School Psychologist

   Time for Administration: 35-85 minutes.

   Scores: Two global scores on mental processing and achievement

   Assesses: Intelligence (defined as a function of mental processing) and achievement

   Use in Gifted Identification: Has application to early primary identification of children with unusually high mental processing abilities.

   Advantages: Incorporates most recent developments in both theory and statistical methodology. Special attention is given to children with handicaps, learning disabilities, and linguistic deficiencies.

   Disadvantages: May discriminate against highly verbal gifted children.

3. **McCarthy Scale of Children's Abilities**

   Author: Dorothea McCarthy

   Publisher: The Psychological Corporation

   Ages: 2.5 - 8.5

   Administered by: School Psychologist

   Time for Administration: 45-60 minutes

   Scores: Composite (general cognitive index) plus five subscores for verbal, perceptual/performance, quantitative, memory, and motor abilities.

   Assesses: General cognitive ability; good predictor of school performance

   Use in Gifted Identification: May be used for identifying k-primary gifted children.

   Advantages: Provides a diagnostic profile of five separate components of intelligence.

   Disadvantages: Limited age range may provoke ceiling effect for primary age gifted children. Young children may be unwilling to attempt certain sections of the test, particularly Verbal Memory, Part II. Requirement that children perform consistently well on all subtests yields lower scores than the Binet. (Roedell, Robinson, and Jackson 1980).

4. **Wechsler Preschool and Primary Scale (WPPSI)**

Author: Wechsler, 1967

Publisher: The Psychological Corporation

Ages: 3 yrs, 10.5 months - 6 years, 7.5 months

Administered by: highly trained examiner

Time for Administration: about one hour

Scores: Verbal and performance scales, each having five subtests.

Assesses: Several different types of intellectual ability.

Use in Gifted Identification: May be used for very young children, but limited for gifted k-primary because of limited range. Use the WISC-R instead.

Advantages: Designed specifically for young children. Different types of abilities identified.

Disadvantages: Limited range make it less useful for gifted K-2 children.

5. **Wechsler Intelligence Scale for Children-Revised (WISC-R)**

Author: David Wechsler

Publisher: The Psychological Corporation

Ages: 6-16

Administered by: highly trained examiner

Time for Administration: 50-75 minutes

Scores: Verbal, performance, total scores (m=100, s.d.=15)

Sections: Verbal: information, comprehension, arithmetic, similarities, vocabulary, and digit span. Performance: picture completion, arrangement, block design, object assembly, coding, and mazes.

Assesses: General intelligence.

Use in Gifted Identification: Measures general intellectual ability.

Advantages: Provides information regarding the subject's general intelligence, and also provides clues to relative strengths and weaknesses based upon the subtests and the psychologist's observations of the child during testing.

Disadvantages: Time and expense involved in the individual administration by a psychologist. Not designed for children under age 6.

Group Tests of Mental Ability

Although Roedell, Jackson, and Robinson (1980) state that "group tests of general intellectual ability are never appropriate for use with children of preschool age," Hagen (1989) suggests that instruments such as the CogAT could be considered, particularly in the latter part of kindergarten and the primary grades if given in very small groups.

This instrument and other group-administered tests of mental abilities are described in L. M. Cohen, G. Sheperd, and C. Palzer (1989).

No research that we are aware of attests to the effectiveness of other group tests of mental abilities for identifying gifted children in kindergarten through grade 2. We recommend selecting an instrument based on the Mental Ability Test Selection Worksheet in this technical paper. The instrument should be suitable for the child's grade; preferably the instrument will already be in use in the district.

Often with bright children, it is necessary to test out of level to determine the child's true ability level (see next chapter for extensive discussion on out-of-level testing). Be sure to use age-level norms rather than grade norms when scoring children tested out of level.

DeAvila Cartoon Conservation Scales (CTB McGraw-Hill—Linguametrics Group)

A group instrument particularly helpful for K-1 children is DeAvila's *Cartoon Conservation Scales*, Level 1, a neo-Piagetian test that looks at universal development in six areas, including various conservations and perspective taking. In Philadelphia, nonmainstream children who scored at least two standard deviations above the mean or above on this instrument were successfully identified. These children were not always identified through IQ tests, because of verbal loading.

Screening Test for Academic Readiness (STAR, Ahr, 1963)

This group-administered test, given to children six months prior to kindergarten, offers a deviation IQ score and eight subtests of school readiness: picture vocabulary, letters, picture completion, copying, picture description, human figure drawing, relationships, and numbers. Predictive validity with the Binet was .72. A score of 116 was used as a cut off by Hollinger and Kosek (1985) to avoid false negatives.

Tests of Academic Aptitude or Achievement

Peabody Individual Achievement Test (PIAT)

The PIAT is an individually administered, norm-referenced, wide-range test of academic achievement in five content areas. It can be used for students in kindergarten through grade 12. The subtests are in math, reading recognition, reading comprehension, spelling, and general information (in science, social studies, sports, fine arts).

Although reliability is low for decision-making in some subtests, standardization was superior. Teachers must check for content validity (Does test match what was taught?) (Salvia and Ysseldyke 1981).

Other Individually Administered Tests of Academic Achievement

The WRAT—Wide-Range Achievement Test and the Woodcock-Johnson Psychoeducational Battery are not highly recommended by Salvia and Ysseldyke 1989.

Group-administered achievement tests are discussed in the state technical manual on identification. Little research is available as to their relative effectiveness in identifying kindergarten and primary gifted children. We recommend that instruments be selected from the list described in the Appendix of the state technical manual on identification, based on both the grade and the district-adopted instruments.

Again, test out of level if a child appears to be "topping out," using age norms for scoring. Be sure to test small groups rather than a whole class. Advanced reading and mathematics abilities are fairly easy to identify.

SUGGESTIONS FOR IDENTIFICATION OF YOUNG GIFTED CHILDREN

1. If the district has an early admission policy, children tested for early admission with scores of +130 IQ (usually the Binet is given) are usually mentally gifted.
2. Often, districts screen each new kindergarten pupil. Any data collected could be useful. Children already reading or writing, or those with advanced mathematical concepts, will likely need special services or programs. Although academic abilities are advanced, not all early readers, writers, or mathematicians are found to be intellectually gifted (Roedell, Jackson, and Robinson 1980). A child functioning two standard deviations above the mean or about two grade levels (less for very young children) is likely to be academically gifted, however.
3. Drawings that contain a lot of detail (for example, a kindergartener's portrait that includes eyelashes, pupils, fingernails, ears, and nostrils) often indicates high intelligence. Other products created by young children should be evaluated as well.
4. Parent checklists that ask the parent to describe their child's specific behaviors are better predictors of giftedness at the K level than are teacher checklists. These may be difficult for parents with limited English or educational background, however. (See Appendix C for a Sample Parent Nomination Form and Appendix D for Clewett's Preschool Parent Inventory.)
5. Teacher checklists *after training*, and teacher observations. Teachers should be alert for the steep slope trajectory—indicating a rapid rate of learning after initial grasping of an idea or strategy. (See Appendix E for the Renzulli-Hartman Scale for Rating Behavioral Characteristics of Superior Students.)
6. After collecting sufficient data to indicate giftedness is likely, use individual tests of mental ability or tests such as the STAR, the Peabody, or the DeAvila, as well as taking into consideration information provided by parents and teachers.
7. Use a "best performance" approach, sampling a wide spectrum of abilities, rather than requiring consistently high scores on all measures.
8. Use instruments that are sufficiently challenging to allow highly gifted children to display their abilities. This may mean using tests designed for older children.
9. Go slowly—collect behavioral information through anecdotal observations taken systematically over time. Test in the latter part of kindergarten if possible.

(Note: For extensive discussion of a suggested procedure for identifying gifted children, please see the state technical paper on identification. A portion of the material in this chapter was included in Cohen, L., Sheperd, G., and Balzer, C. [1989].)

Chapter 4

ASSESSMENT OF LEVEL AND RATE OF LEARNING

The regulations for gifted and talented students in Oregon specify that instruction be based on "the assessed instructional levels and accelerated rates of learning of identified students" (581-22-403[2]). This chapter discusses issues in assessing instructional needs, offers some strategies for assessing instructional levels, and considers some possibilities for assessing accelerated rates of learning.

ASSESSING PUPIL INSTRUCTIONAL NEEDS

Assessment of a student's instructional level is necessary to provide appropriate programs, services, and learning materials. Such assessment provides data needed to determine the level at which a child is presently functioning in areas of identified ability, as well as in areas in which a child may exhibit a lesser degree of competence. It also provides information that can help the TAG identification team, teachers, and the child's parents determine which available options will best meet the child's needs.

Once a child has been judged eligible for a gifted program, assessment can be initiated by reviewing materials already collected as part of the identification process. For example, achievement test data such as the grade equivalent score and item analysis in a particular subtest, as well as samples of student products, could be reviewed to get a sense of the child's present level of functioning. However, this information will need to be supplemented.

Additional data can be collected on a group of identified gifted children if out-of-level testing or other group testing is to be administered. It can also be provided by a teacher from information already available on the child or collected if the material is not available. Such data might include information in student work folders such as pretests, teacher-made or end-of-chapter tests, diagnostic reading inventory information, diagnostic spelling test information, or student products, such as creative writing assignments, essay tests, or reports.

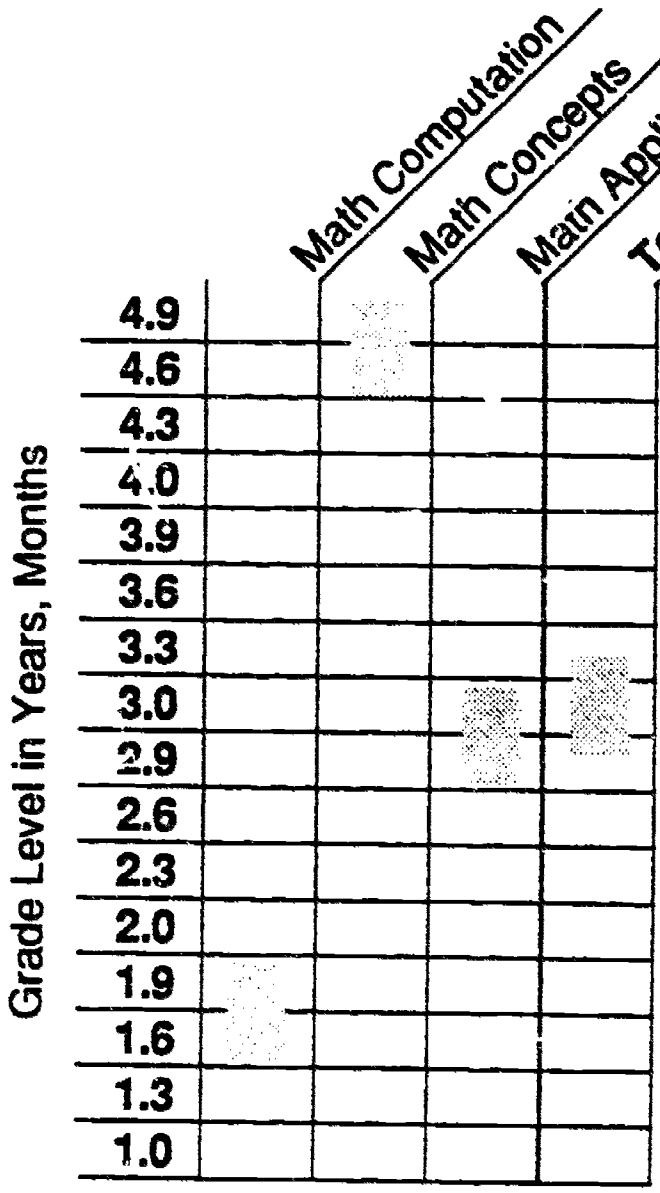
If the child has been appropriately placed, the difference between pretest and posttest scores should be at least twenty points. If children consistently score between the 90th and the 100th percentile on pretests, they are not being challenged, are learning little new, and should be tested at a higher level to determine the actual level of functioning. Additional data can be collected if out-of-level testing is administered, whether standardized or from more advanced material such as a spelling list from a higher grade.

The assessment information is used to plan programs or services for a newly identified gifted student or to update or modify existing programs or services. It can also be used to measure student growth, as long as instruction is provided in the same areas assessed. In fact, student assessment is a necessary component of all good instruction in order to meet individual learning needs. A chart or table that organizes instructional level assessment data is useful. For a sample display of one student's grade equivalency scores, see figure 4.1.

Young gifted children typically experience gaps between what their minds can do and what their physical and emotional capabilities allow them to do. This can often lead to great frustration, especially if their frustration is not acknowledged. For example, a kindergarten child reading at a third-grade level may be extremely angry at himself for not being able to make his pencil form the letter "p." Therefore, in assessing the child's levels of learning, the whole pattern must be taken into consideration (Clark 1988).

Test scores alone should not be the determiner of placement in special programs or access to special services. Although a first-grade child may be able to

FIGURE 4.1: GRADE EQUIVALENCY SCORES



A child who scores like this on a standardized test of mathematics clearly has learning strengths as well as gaps. This child was in the sixth month of the first grade at the time of testing; thus his actual grade placement is represented by 1.6. It is not helpful for the classroom teacher to plan instruction based on the level of difficulty represented by the total mathematics score. Rather, the specific strengths and weaknesses must be addressed.

In this particular instance, the child's strong grasp of math concepts would indicate that it might not be appropriate to resort to an emphasis on manipulatives to build computational skills. The teacher should observe the child at his work. Does he have adequate fine motor skills? Is he getting hung up in writing the problem down? How are the mental math skills? Further investigation into the steps employed during problem solving might give indicators as to why computation skills lag. Highly specific data such as difficulty computing 2-digit numbers due to incorrect lining up of the numerals in the tens and ones columns give the teacher a clear direction in planning appropriate instruction.

readily comprehend reading materials at a third-grade level, he may not be ready for placement in a third-grade reading class. He may be socially and emotionally immature, or may have insufficiently developed fine motor skills to do the required written work that accompanies the third-grade reading series.

In addition, the scatter of items that indicate grade equivalency on a standardized test should be carefully analyzed. If a first-grade child's mean score is at the 3.1 level, there will likely be gaps and deficits in some items below that level, while the child may be able to perform at a considerably higher level in some areas.

The individuals who know the child best—his or her classroom teachers, parents, and school counselor—should weigh the test results in this regard. It might be more appropriate to place this first grader in a group with two others in his own class, provide independent reading activities through the library, offer a good literature program, and provide computer-assisted instruction.

Young gifted children also seem to learn idiosynchratically, not necessarily following the pattern of instruction planned for most children. Sometimes they appear to learn by osmosis. Assessment should indicate the gaps, but routine assignments may be inappropriate. Often, the best way to help a young, gifted child is to quietly point out the problem and teach individually. For example, Jenna's writing is quite advanced for a first grader, but she does not capitalize the first word in a sentence. Talking to her directly about this problem in her story will likely be more effective than several ditto sheets on capitalization (see Clark 1988).

To provide appropriate placements for identified students, an assessment process and recordkeeping system will be helpful in conducting the assessment and subsequent followup of students. The following is an example of how this might be accomplished:

1. Pretest students on unit concepts and information using a variety of testing formats (short answer, multiple choice, and so forth).
2. Record scores.
3. Determine what needs to be covered briefly or what needs to be taught, what should be practiced, and what should be enriched.
4. Administer posttests using a variety of testing formats or use other means of evaluating growth and record scores.
5. Remediate weak areas.
6. Move on.
7. Maintain a student profile with detailed records of the student's progress.

A child is usually considered to have demonstrated mastery when he or she scores at or above the 80th percentile on the specific skill or ability being taught. Check carefully for error patterns, as gifted children may have the intelligence to solve problems, but may not use efficient methods. For example, a gifted second grader may figure out how to solve fraction addition problems, but may be solving them through an elaborate and idiosynchratic system of representation of fractions. The student may need assistance to gain efficiency, but will most likely learn very quickly.

The ideal instructional level is generally considered to be between the 60th and 80th percentiles in comprehension, the point at which the child has an adequate knowledge base upon which to build. If a child scores below the 60th percentile, his or her level of frustration will probably be too high for most instruction.

To assess instructional levels of students, a variety of information will be useful. The following section suggests sources of that information.

METHODS FOR ASSESSING INSTRUCTIONAL LEVEL

The following methods may be used to assess instructional level. Many of these are self-evident and already used by many teachers in planning appropriate instruction.

Out-of-Level Testing

A test that is too difficult or too easy may not provide much information about students' actual achievement levels. For most gifted students, testing is too easy and, therefore, unchallenging. Test scores are also inaccurate and can be misleading in the gifted range. Functional-level testing, giving students tests that are at their true academic level, is a helpful alternative. In some cases, functional-level testing may require giving a student an out-of-level test.

Out-of-level testing consists of giving tests that are higher or lower than the level recommended for a child's particular grade. Students at the high end of the achievement spectrum may find a test level too easy. Testing at a higher level provides more "ceiling" and more accurate information about the student's strengths and weaknesses.

Test content and difficulty are the most important factors to examine when matching a test level to students' achievement level. Matching test content with program curriculum is typically done as part of the process of selecting the entire test series for use in a program. The next step involves choosing a test of the appropriate difficulty for students. Useful sources of information in determining which test levels are of appropriate difficulty include:

1. Existing Standardized Test Data

   Previous student scores may indicate which level of a test to use. Out-of-level testing is appropriate for students who are able to answer:

   Less than 33 percent correctly —test down one level

   More than 80 percent correctly—test up one level

2. Locator Tests

   Many standardized test batteries include locator tests containing sample test items from full-length versions. Student scores on these tests will help you select an appropriate test level.

3. Instructional Materials

   The level of instructional materials used by a student provides clues for selecting tests of appropriate difficulty.

4. Teacher Judgment

   Teachers can be excellent sources of information in determining their students' functional level. Subjective judgments can be avoided by using consistent criteria, such as a standard rating scale, for judging students' skill levels.

Standardized Achievement Test Data

Look at subtest data and an item analysis to target specific strengths and weaknesses. Use tests whose content closely resembles what is taught. A grade equivalent score is usually provided for each subtest. This does not mean that the child is truly functioning at that level, for at the highest and lowest ability levels of the test a few items discriminate large spans of grades. Rather, if a child in first grade scores a 4.3 grade equivalent in math comprehension, for example, it means that he or she is well above grade level, but may not merit placement in fourth-grade math. Further assessment is needed.

Textbook Placement or Unit Tests

These are very useful, especially for math. If a child is scoring over 80 percent on the final test, any weaknesses should be remediated and testing done at the next grade level.

Other Sources of Information

Listed below are several other sources of data that can be used to assess instructional level:

- Individual reading inventories
- Group reading inventories
- Diagnostic tests of various kinds
- Teacher-made tests
- Criterion-reference tests developed by individual districts to measure mastery of their own curriculum
- Student products—writings, projects, essay tests, artworks, and other evidence
- Oral evaluations—discussions with student by teacher to ascertain student's knowledge and understanding
- Interest inventories
- Observations of student
- Parent interviews
- Student self-selection of materials observed over time
- Learning style inventories

ASSESSING RATE OF LEARNING

The Oregon Administrative Rules (OARs) require that a child's rate of learning be assessed and then addressed in instruction. Almost no evidence of research has been found on this topic, however.

Early literature suggested that gifted children can be thought of as having a learning rate at least 1 1/4 times faster than that of other children. However, because one's rate of learning (the normal capacity or speed with which one moves through curriculum) is affected by (1) subject, (2) point in the learning process, (3) degree of interest in the material, (4) the level of difficulty of the material, and (5) learning style, assessing a child's overall rate of learning is difficult. While gifted students generally learn faster than students of normal intelligence, their rate of learning is not constant.

Learning of all children is typified by periods of:

- Leaping—great bursts of growth to new and higher levels
- Backsliding—utilizing more primitive forms of thought
- Elaboration—beginning to grasp the nature of the new idea, technique, or strategy
- Consolidation—understanding becomes complete (Snyder and Feldman 1980)

The best way to obtain a general approximation of a child's learning rate is probably through careful observation of the child on *self-selected activities*. Some gifted children work more slowly, spending considerable time thinking about a problem before attempting solution. Studies have found that this "up front" time for encoding is the mark of a good problem solver (Sternberg 1982).

For example, a gifted child may not be able to finish a timed math test within the forty-five minutes allotted, although she may be an excellent mathematical thinker. It is important, therefore, not to confuse speed of test-taking or other classwork with rate of learning. This same child may be capable of

doing work in mathematics two years ahead of her present placement if she is given the opportunity to pace herself. Therefore, once the instructional level is assessed, the gifted child can then set her own pace in going through material, encouraged by the teacher to move as fast and as far as she is able, without being unduly stressed.

Number of Repetitions

While most children need multiple repetitions of a concept to learn it, the gifted child may grasp a new concept after only one encounter. Therefore, teachers need to allow gifted children to move ahead at their own pace. For example, a first grader can often understand a phonics rule without many reinforcing worksheets. On the other hand, a new topic, difficult material, or a concept of little interest may require a number of repetitions.

Different Learning Trajectories

A major difference between the learning pattern in gifted and average children is a difference in trajectory. For example, a gifted and an average child in first grade may both begin to read in November. By March, the gifted child may be reading self-selected books at a third-grade level. The average learner, on the other hand, makes considerably slower progress, reading materials typical of the grade level. Once the gifted child catches on, the rate of learning is typically very rapid, particularly if the child is interested. We call this a "steep-slope trajectory" (Cohen 1989).

Evaluating Rate of Learning

Because of the variations described above, it is critical to maintain a long-term perspective when assessing learning rate. Consider changes in any measures over at least a period of a year. While quantitative measures can provide some general indicators they cannot measure how a child has integrated new ideas and information into his or her structures, how that child perceives the world, how the point of view has changed, or how the child uses new information. To do this, qualitative measures are also necessary.

With the cautions discussed above in mind, and with the caveat that there is virtually no literature on assessing rate of learning for the gifted, three suggested strategies can give an overview of learning rate. The first two use quantitative data and the third relies on qualitative data.

Quantitative Measures

These measures can give an estimation of the child's rate of learning in comparison to others of his or her age group. However, they cannot indicate whether this rate is appropriate for the child.

Conversion of IQ-Type Scores to Measures of Rate. An IQ-Type Score (score of mental ability) is derived by dividing the chronological age into the mental age (age when a child usually performs a particular series of tasks) and multiplying by 100. Thus, if a child has the chronological age of 60 months and the mental age of 90 months, the IQ will be 150. This ratio of chronological age to mental age can be considered a rough indicator of rate. In the case described above, the child's learning rate should be about 50 percent faster than that of peers of average ability. Likewise, if the IQ is 130, the rate of learning should be about 30 percent faster than that of age peers.

Use of the Scale Score. Functional-level testing (testing out of level) on standardized achievement tests provides a way to obtain an estimate of rate of learning. If students are allowed to rise to their own level, a big difference may be noted on the scale scores as opposed to percentiles, which can be translated to rate. The normal scaled score difference per year of growth is about 25 points. With gifted students, it may go to 45 points if self-paced. This is an experimental idea, well worth exploring.

Qualitative Measures

Qualitative measures can assist in determining whether the child's rate of learning is appropriate, as opposed to quantitative measures, which answer more what the rate of learning is.

Use of Questionnaires or Interviews. Parents, teachers, and children could be given questionnaires or could be interviewed about whether the child is working as fast as he or she can, whether the materials are suitable, whether the child is busy or bored, whether the child is challenged, interested, stressed. In addition, questions about the making of meaningful relationships among and between the facts that indicate structural growth can be ascertained. In addition, observing the child's self-paced pattern gives clues as to appropriate rate.

MATCH OF PROGRAMS AND SERVICES TO STUDENT NEEDS

Once gifted students' educational levels are assessed, the district should have a variety of options available with which to meet student needs. These will be discussed in depth in the next chapter. Buisman (1989) suggests that the program for each child be planned around four areas:

1. Areas in need of acceleration
2. Areas in need of enrichment
3. Areas in need of remediation (a gifted child may have deficits, for example, handwriting)
4. Areas in which the regular program is most appropriate

It is important to note within this categorization, however, that acceleration should be enriched and enrichment should be accelerated.

(Note: A portion of this chapter is derived from Cohen, L. [1989b]).

ASSESSMENT IN THE ESSENTIAL LEARNING SKILLS AND COMMON CURRICULUM GOALS

Assessment of skill and concept development in the state of Oregon should be referenced to the Essential Learning Skills and Common Curriculum Goals. "The Essential Learning Skills. . . represent consensus decisions about skills which are basic to all students' learning. As such it is the responsibility of all teachers to provide instruction in the Essential Learning Skills to assure that each student has the skills needed to learn in all content areas" (*State of Oregon Essential Learning Skills* 1986).

It is important to ensure that instruction of gifted children be skill-based for several reasons. Gifted learners may have learning gaps resulting in deficit skills. These gaps may inhibit their abilities to advance at an accelerated and individual rate. In addition, gifted learners may neglect certain skill areas due to exceptionally strong interests in one subject.

The checklist in table 4.1 is based on the Oregon Essential Learning Skills and Common Curriculum Goals in English-Language Arts. This is a sample list that focuses on the receptive strand in that subject. Space does not permit more extensive assessment lists, but teachers can work together to extend the idea in other areas.

Although the Essential Learning Skills and Common Curriculum Goals do not have outcomes specified for kindergarten or primary grades (the state does, however, consider these skills basic to all students' learning), we have adapted these outcomes to serve gifted students from kindergarten through grade 2 because gifted children so often go beyond grade expectations. The skills serve to enable teachers to determine whether a child's abilities exceed those of age-peers. Another option would be to use the Comprehensive Curriculum Goals, using goals above grade level.

An initial list of skills was reviewed by eight primary teachers. Those skills that were determined unrealistic for primary-age students were discarded.

The checklist can be used to assess the specific competency levels of individual pupils. The skills included within the checklist are meant as guidelines and may not be attainable by all children. They can, however, provide useful information about each child's strengths and deficits.

One way to score competency levels is to indicate the child's facility with a skill by using a 0-1-2 marking—0 representing no mastery, 1 representing periodic use, and 2 representing consistent mastery. Teachers may measure progress by reevaluating children in these skills two or more times per year. The checklist can be used as a student profile that will follow the child through the primary grades.

TABLE 4.1: CHECKLIST FOR ESSENTIAL LEARNING SKILLS AND COMMON CURRICULUM GOALS IN ENGLISH-LANGUAGE ARTS—RECEPTIVE STRAND

Essential Skill—Curriculum Goal	Kindergarten				Grade 1				Grade 2			
	date	check	date	check	date	check	date	check	date	check	date	check
ELS 1.1 Recognize words commonly found in grade level texts. (CCG 1.1)												
a. phonetics analysis												
initial consonants												
medial consonants												
final consonants												
vowels												
phonograms												
initial consonant clusters												
consonant digraphs												
b. use context clues												
in paragraph												
use semantic cues												
use definitions												
c. distinguish compound and plural words												
compound words												
base words												
nouns												
verbs												
d. recognize words at sight												
ELS 2.1 Identify main ideas, supporting details, and facts and opinions presented in written, oral and visual formats. (CCG 1.3)												
a. locate facts in grade-level materials												
b. recall facts and supporting evidence												
c. identify main idea												
in a paragraph												
in a short selection												
d. follow directions or sequences												
ELS 2.2 Use instructional materials as basis for gaining knowledge and improving comprehension. (CCG 1.4)												
a. use supportive illustrations, details and summations to obtain information												

TABLE 4.1: (CONTINUED)

Essential Skill—Curriculum Goal	Kindergarten				Grade 1				Grade 2			
	date	check	date	check	date	check	date	check	date	check	date	check
b. use heard sounds to create spelling												
c. use table of contents to locate information												
d. use index to locate information												
e. use guide words in a dictionary or glossary												
f. use diacritical markings or respellings to pronounce words												
ELS 3.1 Comprehend implied meanings of written, oral and visual communications. (CCG 1.5)												
a. relate new information to previous knowledge												
b. draw logical conclusions from information presented												
c. identify an implied main idea in a simple literary work in grade-level selections												
d. infer direct cause and effect relationships												
e. predict possible future outcomes or actions												
f. make inferences and draw conclusions based on perception of implied meaning												
g. interpret communication through body language, gestures, tone, inflection and volume												
ELS 4.1 Determine the significance and accuracy of information and ideas presented in written, oral, aural and visual communications (CCG 1.8)												
a. separate real from imaginary												
b. identify fiction and nonfiction												
c. identify emotional appeals												
d. use multiple sources to verify information												
ELS 4.3 Distinguish and interpret sounds of nature, language, music and environment (CCG 1.6)												
a. distinguish among natural and created sounds												
b. recognize sounds with messages (e.g., sirens)												

TABLE 4.1: (CONTINUED)

Essential Skill—Curriculum Goal	Kindergarten				Grade 1				Grade 2			
	date	check	date	check	date	check	date	check	date	check	date	check
Use a variety of listening skills. (CCG 1.7)												
a. identify verbal and nonverbal messages												
b. demonstrate purposeful listening												
comprehensive												
appreciative												
empathetic												
critical												
evaluative												
ELS 4.4 Listen, read, view and evaluate presentations of mass media (CCG 1.9)												
a. recognize use of mass media techniques												
b. demonstrate appropriate audience skills												
Demonstrate an appreciation of reading and literature as life-long sources of recreation and learning. (CCG 1.10)												
a. choose a reading selection that encompasses own interests and independent reading level												
b. communicate orally and pictorially responses and reactions to selections of own choosing												
c. identify reading selections related to potential career choices												
ELS 6.2 Generate and test interpretations, explanations, predictions and hypotheses about reading and literature selections. (CCG 1.11)												
a. identify facts that support an explanation and/or prediction												
b. identify factors that may influence a behavior or a result												

TABLE 4.1: (CONTINUED)

Essential Skill—Curriculum Goal	Kindergarten				Grade 1				Grade 2			
	date	check	date	check	date	check	date	check	date	check	date	check
ELS 6.4 Make reasoned evaluations about reading and literature selections. (CCG 1.12)												
a. identify simple or common fallacies												
b. identify appropriate types of information that should be included in different forms of communication												
c. evaluate whether a simple written presentation is consistent with known facts												
Demonstrate knowledge of a variety of literature (CCG 1.13)												
a. describe several pieces of significant children's literature												
b. compare own culture to some general similarities and differences of another culture described in reading												
c. identify literary forms												
poetry												
drama												
d. explain personal reactions and responses to reading selections												
Demonstrate knowledge of literary conventions and elements of structure. (CCG 1.14)												
a. identify and use appropriate terms												
character												
setting												
plot												
b. identify literary techniques												
analogies												
similes												
metaphors												
personification												

TABLE 4.1: (CONTINUED)

Essential Skill—Curriculum Goal	Kindergarten				Grade 1				Grade 2			
	date	check	date	check	date	check	date	check	date	check	date	check
ELS 7.1 Clarify purposes of choice activities/ assignments. (CCG 1.15)												
a. determine general purpose of choice activities/ assignments and ask clarification questions when necessary												
b. determine ideas and concepts addressed in the choice activities/assignments												
ELS 7.2 Use resources beyond the classroom. (CCG 1.16)												
a. locate, check-out and return books and other circulating medial materials												
b. locate and use non-circulating references												
ELS 7.3 Select and use appropriate techniques. (CCG 1.17)												
a. accomplish learning tasks using appropriate techniques												
ask clarifying questions												
seek help when needed												
manage time appropriately												
vary reading rate according to the purpose												
read and reread												
use memory devices												
b. keep study materials organized and accessible												
c. turn in assignments on time												
d. use appropriate text-taking techniques												

Chapter 5

OPTIONS AND MODELS

This chapter addresses the following issues: assessing models and options already available in the district; the variations possible under flexible pacing, a key means of providing services to gifted young children in Oregon; the issue of acceleration and enrichment; administrative models; conceptual models; and the planning pyramid, a means of simply and efficiently planning for the gifted, both on a schoolwide and on an individual level.

ASSESSING OPTIONS AND MODELS ALREADY AVAILABLE

To initiate programs or services for gifted kindergarten and primary grade children, the first task is to assess options already in place that may meet the needs of gifted pupils. For example, many schools already use interest grouping, ability grouping, clustering within the classroom, literature programs, and enrichment materials. Any or all of these (if they are appropriately structured) might be useful in meeting the needs of a gifted child (See Administrative Options, pp. 27-28).

Flexible Pacing

The Oregon Administrative Rules (581-22-403-2) state, "All required written course statements shall identify the instructional programs or services needed to address the assessed instructional levels and accelerated rates of learning of identified students."

Flexible pacing is the best way of providing for the varied instructional levels and accelerated rates of learning common to gifted students. Flexible pacing is defined as "any provision that places students at an appropriate instructional level, creating the best possible match between students' achievement and instruction, and allows them to move forward in the curriculum as they achieve mastery of content and skills" (Daniel and Cox 1988).

The assessment of instructional levels done in the identification phase should be coupled with consideration of the unique learning characteristics of each child in order to create the profile necessary to appropriately match the programs and services to the individual. Next, a careful look at existing and potential programmatic provisions is in order. It is important that a range of appropriate options be identified throughout the grades that will allow for continuous flexible pacing to meet individual student needs and permit accelerated rates of learning.

Daniel and Cox (1988) describe the range of tested options that have been proved most effective in accommodating different learning styles and learning rates of students while allowing them to progress on the basis of mastery. Existing options from among the ones discussed below should be maintained and additional ones added whenever feasible to effectively address the needs of gifted students.

Continuous Progress

Continuous progress is the most effective way of ensuring instruction that is appropriately challenging without being unduly stressful. This approach can be productive for all students but is especially crucial for gifted students. The daily program is structured so the child is able to progress at his or her own pace through the curriculum, moving ahead whenever mastery of content and skills is demonstrated. Implicit in this option is elimination of the age-in-grade lockstep.

Continuous progress is achieved through a combination of approaches that may include ability grouping, which allows students to progress from one group to the next when they are ready; cross-grade, cross-age groupings; individualized learning packets; enrichment at grade level; and various approaches to acceleration (see below). Ideally, students will experience several of these options across their programs, connecting their needs in any given area with the resources available.

Early Entrance

Early entrance is related to continuous progress in that it supports movement of students through the system without age-grade restrictions. A child may enter kindergarten (or middle school or junior high, high school, or college) prior to the usual age at which students begin these programs.

Exercising such an option generally requires careful consideration of the child's physical, social, and emotional development in addition to an assessment of his or her cognitive needs. This holds especially true for younger students.

Grade Skipping

In grade skipping, pupils advance one or more grades beyond the one normally prescribed for their age. This may be an appropriate option when the child is clearly advanced in all areas of the curriculum and would suffer needless frustration by remaining with age peers. Again, careful consideration of all aspects of the child's development is indicated.

Concurrent Enrollment

This option provides for dual enrollment in two levels of schooling. When a child shows exceptional ability in one or two areas rather than in the entire curriculum or is unprepared for early entrance to the next level of schooling for nonacademic reasons, concurrent enrollment may be an appropriate choice.

For example, the kindergarten child who is ready for advanced arithmetic work might go to a different school for math instruction at the second-grade level. The child does not have to wait until he has graduated from one level of schooli.. for the next step in sequentially organized subjects like mathematics or foreign language instruction.

Concurrent enrollment may also open the door to resources and technologies unavailable at the lower level. The student ready for advanced computer instruction or lab science should not be forced to wait simply because of his or her chronological age.

Advanced-Level Courses

With early entrance, grade skipping, and concurrent enrollment, the child goes to an advanced-level of instruction. It is also possible for the advanced instruction to come to the student. Elementary schools may provide for this through ability grouping and cross-grade groupings or may have optional courses into which students may be directed.

It should be remembered, however, that higher-level content alone does not necessarily satisfy the learning requirements of gifted students. Curriculum must also be presented in such a way that it allows students to utilize their powers of abstraction and synthesis to connect coursework to major concepts and themes.

Credit by Examination

One version of credit by examination occurs when a student demonstrates readiness for advanced-level coursework through satisfactory performance on a test of prerequisite content and skills. Credit for what would be the normal prerequisite coursework may be granted, and the student becomes eligible to enroll in the advanced course. For example, a first grader may test out of a primer and be able to read in a more advanced basal series or in a literature-based program.

Compacting

Curriculum compacting is a technique that allows students to cover the regular curriculum more rapidly or somewhat differently. "In its simplest form, compacting consists of determining through formal and informal assessment procedures the curricular content areas that some students have already mastered or might be able to master through modified approaches to instruction" (Renzulli, Reis, and Smith 1981).

This option may apply to both elementary and secondary settings. The key issue is one of economy. At the elementary level, subject matter is taught in an abbreviated time whenever possible to allow for the inclusion of enrichment experiences or to allow a child to work at more advanced levels. A student who does not require repeated drill on a math lesson might take the test early and use the time to pursue a math enrichment project on the classroom computer. Utilizing students' time in such a way that they are not forced to "tread water" but, instead, be continually challenged is the objective of this and other flexible pacing options.

There are three stages to compacting:

1. *Assess skills* to determine whether the student has mastered the material. Use formal tests, pupil observations, products, or other means (see chapter 4 on assessment).
2. *Find strategies to cover the curriculum*, such as reducing time between pretest and final test,

independent study, use of a tutor or mentor.

3. *Provide alteratives for enrichment or acceleration* such as use of other materials, choosing other activities in the same content area, remediating areas that need more work, doing more difficult or out-of-grade-level work, or doing work in other subjects. For example, a child with great musical ability is given a spelling pretest along with the rest of the class. If no words are missed, or only a few, the child may be given class spelling time to practice her violin.

ENRICHED ACCELERATION AND ACCELERATED ENRICHMENT

Acceleration is a term used to describe having a child work at a higher level and/or faster pace than age-mates. For example, a child does second grade reading in first grade. Acceleration alone does not necessarily take into account the learning styles of gifted students, nor does it allow for greater depth or breadth of coverage. On the other hand, enrichment without acceleration may be too slow paced, superficial, and nonchallenging.

Julian Stanley, proponent of radical acceleration from Johns Hopkins University and his colleagues (George, Cohn, and Stanley 1979) suggest that both acceleration and enrichment are necessary. Chapter 6 discusses differentiation of instruction.

(Note: A large portion of the preceding sections are derived from Cohen, L., DeBuse, M., Hladky, J, and Wilhelmi, G. [1989]).

ADMINISTRATIVE OPTIONS

According to Renzulli (1986), administrative options are those based on grouping of students or arrangements for how services are to be delivered rather than on a philosophical or theoretical framework (See Conceptual Models, next section). The flexible pacing models already described are of this type. Administrative options applicable to kindergarten and primary children include those in the classroom, school, district, or out of the district.

Several of these could be in more than one category. For example, tutoring could fit in each category. Two asterisks (**) indicate a flexible pacing option according to Daniel and Cox (1988) but other options could be applied as well.

In the Classroom

*Compacted Courses or Curriculum***—Content is compacted into abbreviated time to allow additional time for enrichment or additional courses as well as to keep the student challenged.

Computerized Instruction—Child progresses at own rate on a computerized program of instruction.

*Continuous Progress***—Instruction is provided at assessed instructional level and rate of learning rather than by grade-level designation.

Cooperative Learning—The child works with peers by interest or ability to accomplish an end. Cooperative learning allows the child to grasp material through interactions with peers and to develop social skills. Groups should be fluid, changing as needed. At times, they may consist exclusively of high-level students, while on other occasions, a mix of ability levels may be optimal.

Inclass Grouping—Children are grouped by abilities or interests within the classroom for specific skill instruction.

Field Trips and Cultural Experiences—For the gifted, these should involve greater depth, for example, not just a trip to see a play, but a visit behind the scenes to learn about set design, costuming, business management, makeup, and so forth.

Independent Study—The teacher and child negotiate a contract regarding work to be done by the child in an area of interest.

Individual Packets—The teacher prepares packets for pupils to work on individually according to their abilities.

Individualized Program—A program based on the assessed learning needs and interests of each child is developed, usually by the teacher(s) involved, the child, and the parents. Sometimes this is a formal plan called an I.E.P. A person is designated by the principal to ensure that the plan is both developed and carried out. It utilizes existing school offerings and seeks ways to meet needs if they cannot be met in the classroom, providing a flexible approach.

Interest Grouping—Children select a topic of interest and work with other interested peers, sometimes of mixed ages, for example, pupils in grades K, 1, and 2 could work on a choice of rocketry, dinosaurs, print making, or horses.

Learning Centers—Specific areas are set up for independent activities that can be chosen by the stu-

dent during free time or center time, such as an invention center, a science center, or a literature corner. Often, suggested activities and/or directions are provided.

Study and Thinking Skills—A special class or part of curriculum focusing on thinking and study skills is provided.

Thematic Teaching—Several subject areas are woven into a common theme such as Exploration, Changes, Patterns, and so forth, giving the curriculum a wholeness and providing areas for individual interest exploration.

Tutoring—Gifted children may be tutored by students from higher grades or they may tutor age peers or pupils from lower grades.

In the School

Ability Grouping—Students are grouped for skill instruction within a classroom, grade level, or cross-grade level. Most commonly done in language arts and math, this option may include acceleration and enrichment.

Back-to-Back Classes—Class is split, using specialists to allow smaller groups for skill instruction.

Contests—A variety of contests are engaging for gifted children and others as well. Most challenge thinking and creativity. Invention Conventions, Odyssey of the Mind, and Future Problem Solving are some. These can be done at classroom, school, district, or out-of-district levels. (See Appendix F for addresses of academic contests open to young children.)

Clustering—Gifted children from one or more grades are grouped together with a teacher who has both the interest and training to work with them.

Counseling—Counselors can help groups or individual TAG students to deal with self-concept, awareness of self and others, problems of giftedness, and/or underachievement.

Cross-Age Grouping (also known as Cycling)—Schoolwide or at least gradewide grouping of children by ability for skill subjects, such as math or reading-language arts, where all students move to that class at the designated time.

*Grade Skipping***—Students are advanced one or more grades beyond the one normally prescribed for their age.

Homogeneous Grouping—Children are grouped by ability for instruction, usually on a schoolwide basis.

Mini-Courses or Seminars—These are short courses for interested children on topics such as CPR, newspaper, or nutrition. May use outside experts.

Multi-Age Classes—Children are grouped in clusters of grades such as K-1-2, 1-2-3, and 3-4-5, allowing bright younger children to interact with older students and to work at higher-grade materials.

Resource Rooms—Gifted children spend 20 percent or more school time in a special class with a teacher trained in TAG education. The teacher stays in one or two well-equipped centers.

In the District

Alternative Schools—Schools focus on such areas as fine arts, theater, foreign language, open classroom, Montessori, or computers.

*Early Entrance***—A child enters kingergarten (or middle or junior high school, high school, or college) prior to the usual age. This is usually a matter of district policy.

Full-Time Gifted Class or School—The gifted children in a school or district are grouped homogeneously.

Itinerant Teachers—A TAG teacher commutes to different buildings, serving the gifted in whatever space is available.

Magnet Programs—A district may allow students to attend a school that best suits the individual's needs. Magnet programs may be a program within a school. Sometimes, magnet programs are established to promote racial balance in a district.

Resource Consultant—A specially trained teacher of the gifted works with classroom teachers to assist in providing appropriate instruction, materials, and strategies. The consultant may also teach model lessons or work with an individual child or small groups of children.

Out of the District

Saturday or Afterschool Classes—Special classes for TAGs, such as the University of Oregon's Super Saturday or Saturday Academy, are provided.

Summer Programs—Examples include the University of Oregon Super Summer or Summer Enrichment programs.

(Note: Material for this section was derived from Cohen, L. M. [1988c]).

CONCEPTUAL MODELS

A conceptual model should be considered a "complete" model if the following elements are included: an educational philosophy, a definition of giftedness, identification procedures, a rationale for the model, a curriculum that provides differentiated services for the gifted in the cognitive and affective domains, and evaluation procedures. It should be research-tested over time as well.

An "incomplete" model isn't necessarily bad, but a complete model is preferable because it serves the dual purpose of educating the gifted and educating teachers who need to become more knowledgeable about how to educate talented and gifted students.

The conceptual models described in Appendix G have been selected because they can most easily be applied to the requirements specified in the new mandate. The models of Betts, Clark, and Renzulli are comprehensive because they incorporate all the criteria listed above for a complete model. Both the Betts and Renzulli models generally require a special pull-out aspect, usually a resource-room type of program. Clark's model could be applied in the regular classroom.

Kaplan's model is specific for differentiating curriculum for the gifted and can be used in either special classes or in the regular program. The model proposed by Cox, Neil, and Daniel is really more of an organizer for the delivery of services and can incorporate any or all of the other models.

Other conceptual models exist, but are less germane to the Oregon mandate.

The Post-It Planning Pyramid

Moule (1990) developed a useful strategy based on the Pyramid Model (see Appendix G) for planning options at the schoolwide, subject area, or individual child levels. The heart of this planning procedure is use of two simple materials: file folders and Post-it notes. For schoolwide planning, large chart paper is recommended. A triangle is printed on file folders (or chart paper), with dotted lines delineating options in the classroom (bottom of pyramid), in the district (middle section), and out of the district (top). In larger districts, a fourth division can be made between classroom and district titled "in the school."

A school team assesses existing options for the gifted. For example, in most schools, independent study, use of library, grouping within the classroom, and contests are common, as are other options. These are listed on Post-it notes. Moule suggests that grade levels also be indicated on the Post-its, as well as degree of implementation of the option. Other options are then brainstormed using the same pattern. Color coding by subject areas may be useful, using pink Post-its for math, yellow for language arts, and so forth.

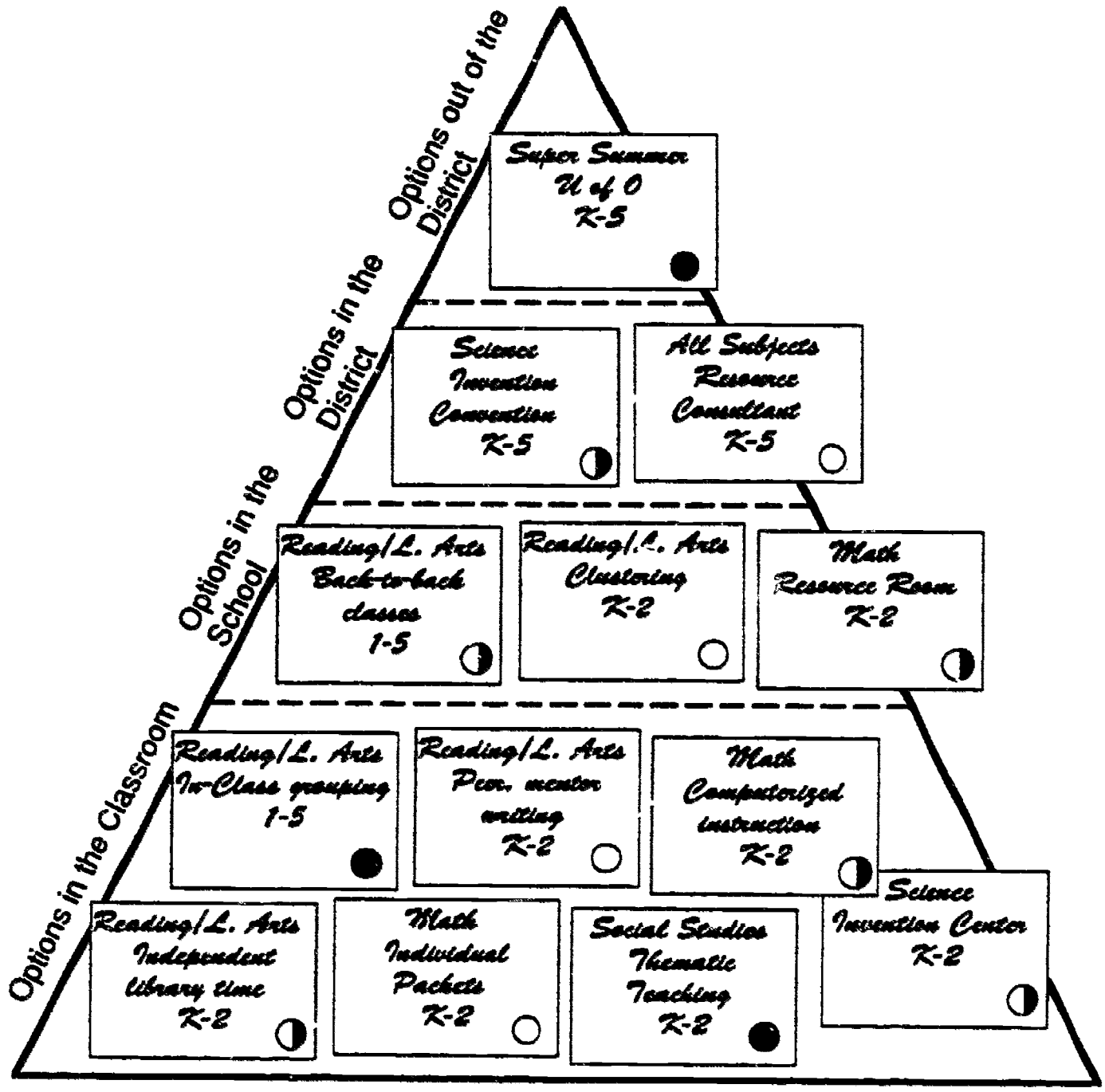
An example of a Post-it pyramid is presented in figure 5.1.

This technique can be useful for subject area or grade-level planning as well, particularly in planning the modification of course statements.

The Planning Pyramid can be used to develop an appropriate educational plan for an individual child in a planning session with the parents and child. Use the Post-its from the school- or grade-level plan and place appropriate ones in a folder labelled for a given child. This plan must be based on the child's assessed levels and rates of learning. Add options that meet his or her individual needs if necessary. For example, a girl who writes wonderful stories might have an option on her program to work on a book of stories with the school reading teacher.

The plan can be reduced and duplicated on a Xerox machine, making one copy for the child's parents and one for the student's file.

FIGURE 5.1: EXAMPLE OF A POST-IT PYRAMID



Chapter 6

DIFFERENTIATING THE CURRICULUM

As was discussed in chapter 2, gifted young children are most often characterized by:

1. A rich memory storehouse
2. Intense curiosity
3. Reflectivity
4. Openness to experiences
5. Ability to see relationships, generalize, and abstract
6. Ease and speed of problem solving
7. Intense, early interests, and the energy and perseverance to pursue them

Based on these characteristics and others commonly found in gifted children, the gifted learner requires a qualitatively different curriculum. Like pupils at the other end of the spectrum, gifted children benefit from learning experiences that fit their unusual learning profiles. This match is achieved by adding to the regular curriculum, extending it, restructuring it, replacing it, or developing an entirely new curriculum. The goal is to ensure that the gifted learner is stimulated and challenged throughout the entire school day, whether he or she is in a special program or class or in the regular classroom.

Understanding various approaches to differentiating the curriculum is a prerequisite to successfully meeting the educational needs of these children (Clark 1988, Maker 1982a and 1982b, Kaplan 1974 and 1986, Passow 1981, and VanTassel-Baska 1988).

Failure to provide appropriate instruction and sufficient challenges for gifted children can have serious consequences for each child as well as having a negative impact on the management of the classroom as a whole. Poor work habits and a low tolerance for frustration are likely to develop if young gifted children are not presented with challenges commensurate with their abilities and interests. Lack of challenge in a child's area of giftedness often results in hostile behavior, withdrawl, or underachievement (Whitmore 1988).

Young gifted learners require a variety of modifications in the basic instructional program to accommodate their unique needs and talents. *Differentiation of instruction* has been defined as follows:

> Differentiated education or services means that process of instruction which is capable of being integrated into the school program and is adaptable to varying levels of individual learning response in the gifted and talented.(Marland 1978)

CURRICULUM DIFFERENTIATION: WHAT DOES 'QUALITATIVELY DIFFERENT' MEAN?

Many areas once considered special programs for the gifted, such as higher-level thinking, brain-based education, learning styles, enrichment through field trips, or introduction of foreign languages in elementary grades are now recognized as belonging in regular education and beneficial for all children. One key to differentiation is a distinction between consumers and producers of information. Gifted children can go beyond consuming or using what others have done to adding something new to a field, through a curriculum involving exploratory activities, skill development, and investigations of real problems (Renzulli 1977a, Renzulli 1980).

Passow (1986) suggests that differentiated education programs must be integrated into a cohesive whole. Such a program should be comprehensive, be permanent, not be dependent on a particular person, and take into account the total experience of a gifted child:

1. The *general education curriculum*
2. The *specialized curriculum* (aimed at supporting the specific areas of ability of the individual)
3. The *covert/subliminal curriculum* (includes learning as an outcome of aspects of the classroom or community climate and environment, such as self-concept, attitudes, task commitment, and values)
4. The *nonschool curriculum* (found in a variety of agencies and institutions outside the schools such as churches, museums, media, or libraries)

It is differentiated by its goals and objectives, content, strategies, resources used, time, space, organization, and means of evaluation.

The works of several authors (Clark 1988; Cox, Daniel, and Boston 1985; Jellen and Verduin 1986; Maker 1982a and 1982b; Passow 1986; Renzulli and Reis 1985; Van-Tassel-Baska 1988; and Ward 1980) suggest comprehensive, articulated, sequenced, and differentiated curricula are effective. Below are some general principles for differentiating the curricula in four broad areas: the learning environment, the contents, the processes, and the products.

THE LEARNING ENVIRONMENT: SETTING THE CONTEXT

The Teacher

The success of good instruction for the gifted depends on the quality of the teacher, whose chief roles are facilitator and manager. A good teacher of the gifted does the following:

1. Organizes resources for children
2. Provides exposure to new ideas and opportunity for exploration
3. Tunes in to children's interests and questions
4. Stretches, rather than stresses
5. Uses negotiation and contracts
6. Provokes inquiry
7. Advocates for children
8. Empowers children

The Classroom

It is easiest to work with gifted children in noncompetitive, individualized, open settings where they are able to advance at their own rate of learning, although teacher-directed traditional classrooms may meet the needs of advanced learners who are not more than two years above grade level. A variety of interesting, complex materials and activities should be available. Children should experience the classroom as a place where it is safe to make errors or even fail.

The classroom is not limited to the four walls; rather, children can move into the community or other parts of the school, and community members can bring exciting ideas to gifted learners. A good classroom for gifted children is interactive and gives children the opportunity to exchange ideas with peers. Space should be organized for flexibility, storage of children's works, and easy access to a wide variety of materials.

Physical Modifications

Modifying the environment for differentiation means providing the physical elements necessary for children to conduct investigations, apply new skills in meaningful ways, explore areas of interest, work cooperatively with others, and enjoy such activities as drawing and reading independently. A reading corner and a listening station are standard examples of areas where children pursue independent activities. Expand the options to include a creative writing corner rich in stimuli for writing, such as picture books, a typewriter or computer, sample child-made books, and art materials for illustrations.

Add displays and learning centers that relate to an all-class study of some sort, but offer possibilities to investigate the subject in greater detail (a plant classifying station, for example, could offer new specimens each day and children could work alone or in small groups to determine characteristics used in sorting plants). Set up a collections center, such as toys from other countries, stamps, bird nests, or rocks, to spark interests and launch research projects. Provide an "unvention" center equipped with screwdrivers, pliers, and a hammer, enabling students to take apart old clocks, toasters, and radios (Be sure to cut the electric cords off to ensure safety). Offer an invention center with similar tools, glue, tape, and lots of good "junque," including telephone wire, various boxes, styrofoam "worms," cardboard and paper, paper clips, wood scraps, and whatever else you and the children can find to enhance creative and inventive thinking.

Another option is to organize the classroom around a theme. Within the theme of *Changes*, for example (see chapter 8), the room might be arranged with displays of pictures of changing seasons; changes made on the land by weather, water, and wind; baby pictures and pictures of the pupils now; and a giant timeline showing changes in life on the earth (yes, bright first graders would thrive on such a topic); or changes in the meaning of Japanese, Hebrew, or braille letters when a line or dot is added. Learning centers could include a rhyming word center with changeable beginning and ending letters.

Another might be a physical changes center equipped with water, salt, sugar, food coloring, tissue paper, dishwashing detergent, plants such as celery stalks, sand, a scale, and measuring equipment so children could explore what happens when salt is put in water, and so forth. Ice cubes could be brought in or the teacher could supervise use of a hot plate to heat various substances.

Plant growth is another possible theme for such a center. Children could do simple experiments, making hypotheses ("I think lima beans will grow best in green water") and controlling variables (using the same quantities of clear water and green water under the same conditions) to test them.

An art center that offers children the opportunity to see what happens when they use watercolors instead of crayons or experiment with the use of paints through different application methods (brush, sponge, tissue paper, straws to blow it on) is another avenue for exploring the theme of *changes*.

Offering opportunities for autonomous learning experiences such as those mentioned above is a great boon to the teacher. Children become less demanding of teacher time when they are free to work independently on something meaningful to them. Furthermore, independent learning is promoted, ultimately resulting in the development of skills for life-long learning.

One program entitled "Light Brights" (Martin 1988) uses activity bins made from dish pans to allow young children to explore areas of interest. Each bin is named (for example, paper airplanes, sewing, math magic) and labelled for Bloom's (1956) thinking skills. Interest themes could also be noted (see chapter 7). All materials and directions for suggested activities are included in each bin. The bins may be kept in a common area for use by several classrooms or they might stay in one area of the classroom. Parent volunteers can help children work with the bins as well as replenish materials as needed.

In modifying the physical environment for gifted learners, the teacher should consider a wide array of topics for learning centers and provide appropriate spaces for different types of learners. Children feel comfortable and learn well in a place where groups can meet, work, and discuss quietly. The physical learning area should also include a cozy corner and brightly and dimly lit spaces. Attention to the learning styles and modalities of the children is also important.

Routines

Routines should be established early in the year. Children should know that upon entering the classroom, they may go to an interest center, select a book and read quietly, or come to circle time. They should know what is expected at snack time, rest time, or cleanup. They should understand how to use the learning centers, how turns are established, whether they must use a "pass" when they go to the lavatory. Helping children to become independent is essential, so show children how and where to put finished work away and where materials are kept.

Routines offer real-world opportunities for children to assume responsibility. Instructing students in how to take attendance, lunch count, or calendar can encourage self-sufficiency in the children while it frees the teacher for more important tasks. Establish rules together; the simpler the better. Elga Brown, alternative kindergarten teacher in Eugene (See *OSSC Bulletin* 31 [8], April 1988), has only one rule: Everyone should have a good day. Everything else is guided by this rule. At the same time, variation within the context of routines keeps things interesting. Planning a talent-sharing instead of circle time, a class trip, or pet day can be stimulating.

Recordkeeping

Along with classroom routines, establish systems of recordkeeping early on. If you want to keep a record of learning center activities, for example, children could sign in at each center they use during the day, or they could keep personal learning center record books, recording the name(s) of the centers they use each day. An anecdotal log book with several pages for each child can provide the teacher with a clear picture of individual students' needs and areas of interest.

An interactive journal with preprinted questions allows children to summarize what they learned at the end of the day as well as provides a forum for them to raise questions or concerns. The teacher simply responds in writing to the concerns of the child—no corrections or evaluation. These recordbooks could be bound together and kept in the child's folder. They could serve as a useful record of both learning growth and progress in writing.

Assessment tools such as those offered in chapter 4 allow the teacher to know which skills have been mastered and which need work. If at all possible, skill instruction should be based on a need to achieve a particular objective, rather than taught in isolation.

For example, a child who is not capitalizing the first letter in sentences may be more motivated to do so if he is writing a book for the library.

Modifying the Content

The content of the curriculum should be modified to meet the needs of intellectually gifted and academically talented child. Often, such modifications benefit the whole class as well.

Complexity, Abstractness, and Variety

Material for the gifted should be more complex, abstract, and varied. Teachers must accept the gifted child's readiness to move beyond age peers in seeking a more stimulating curriculum.

Example: A first grader with a passionate interest in horses can read self-selected books on horses instead of working in the primer with the rest of the class.

Organization

1. Because gifted children are capable of seeing relationships between and among parts, curriculum for the gifted should be sequential, articulated from one level to another, balanced with a variety of offerings, and structured as wholes, not fragments. The curriculum should focus on the interrelatedness of subject matter, rather than on skills and facts in isolation.

Example: When teaching webbing in language arts, Venn diagrams in math, and classifying in science, these topics could be related through a theme of similarities and differences.

2. The curriculum should be organized economically, emphasizing teaching of key concepts and principles rather than requiring memorization of facts, since information is changing and expanding so rapidly. What was once accepted as fact is often called into question as new evidence emerges. For example, plate tectonics has replaced discussions of diastrophism, dinosaurs may not have been cold blooded, and nuclear fusion may be induced at room temperature. Gifted children need to develop the research skills to access information as it evolves.

Example: Using a variety of sources, gifted children might explore the various theories about why dinosaurs became extinct.

3. Focus should be on key ideas related to how a body of information is organized, the important questions and issues raised in a subject, and the way research is carried out.

Example: The gifted child might be asked to assume the role of anthropologist or historian when researching her family roots, traditions, and celebrations.

Purpose and Choice

Both the teacher and the child should have clearly defined reasons for pursuing particular curricular topics. If children are to become task-committed, they must have a reason for learning something, beyond it being "what the teacher said to do." Teachers need to provide experiences that encourage freedom of choice, employ discovery, are open-ended, and elicit evidence of reasoning. Gifted children need to have decision-making opportunities in their education. Their learning experiences should allow for individual interests, needs, learning styles, and abilities.

The teacher must also have a long-range purpose in curriculum activities. Preparing children for Friday's test is not a sufficient reason. How the integration of this material will affect the child a year from now or even ten years from now is the question that should be asked by the teacher.

Example: The child should be allowed to select the topic for her report on outer space, and she should be able to choose the form in which to share this information with the class. She should be encouraged to work independently, directing her own study with the facilitation of the teacher. Another teacher might suggest an alternative project instead of the class assignment to challenge a small group of gifted children.

Interaction with Peers

Gifted children should have the opportunity to interact with peers who are like them by interest or ability. Grouping should be flexible and should change according to the demands of tasks or topics. Gifted children often feel isolated and different, leading to development of low self-esteem.

They should also learn to value the gifts in all individuals through interaction with those who possess different interests and abilities. Learning to work well with others should be a curricular goal. Paired problem solving, cooperative learning experiences, interest grouping, ability grouping, peer tutoring, and helping younger or handicapped children are useful strategies. Tutoring raises one cau-

tion, however: It is fine for gifted children to tutor others as long as they want to do so and as long as they are also given opportunities to work at their own level.

Focus on Issues, Themes, or Questions

Curriculum for gifted children should provide opportunities to work on unresolved issues, open-ended questions, and areas in which problems exist. This allows children to think productively and gives them opportunity to explore real-world problems involving both cognitive and affective skills. They should study the future and think creatively about ways to make the world a better place for all, developing values, skills as citizens, and commitment to society.

Opportunities to reconceptualize present knowledge in new forms should be given, as should the chance to view ideas from a different perspective.

Example: Asking children to make a timeline of changes in their abilities as they grow and having them chart things they used to do, do now, and hope to do in the future.

Role of Methodologist, Technologist, and Communicator

Having children take on the roles of methodologist, technologist, and communicator ensures a purposeful, organized, epistemological approach that is theme-, question-, or problem-based. The methodologist—one who studies the way a body of knowledge is built—is best understood in the sciences and social sciences.

The technologist involves understanding and using tools, such as computers, cameras, video equipment, and graphic equipment. This role can be taught in math, computer science, art, industrial arts, graphics, video production, or photography.

The communicator role, that of sharing what is learned or felt, comes in English and language arts, foreign language, music, dance, theater, and art. These roles can be integrated around interdisciplinary themes. By having children actively engaged in finding information within specific fields, new information is learned.

Example: A second grader could assume the role of historian in learning about the history of his house. He could find out about when it was built and what styles were like at that time, who lived in it over its history, how much it sold for. By integrating this methodologist role with that of technologist (he might make slides of houses built at the same period and their decor) and communicator (he could integrate his historical information and slides in a slide tape), the learning is greatly enriched.

Please see Appendix H for Clark and Kaplan's (1988) Curriculum Criteria Checklist.

Modifying the Learning Processes

Because information in the world is doubling at least every three years (Anderson 1986), the most valuable things that educators can give bright children are the *tools for life-long learning*. These include:

1. the research skills for accessing information
2. the thinking skills for processing it
3. the creativity skills for adapting, modifying, or transforming it
4. the communication skills for sharing it (Cohen 1987c)

Although all children should be exposed to these skills, there is a difference in both the trajectory of progress and the end point in what the children will attain. For example, Scruggs and Mastropieri (1988) found that gifted and average children both made progress when taught mnemonic devices that coupled imagery with humor and poetry. However, the gifted made greater gains and the gains lasted over time, while the scores of the average group dropped in the posttest. See figure 6.1 for a display of the differences in these students' learning trajectories. In addition, children must be taught the study skills needed for making good use of time, planning, being organized, and being responsible for their work.

The tools needed for lifelong learning are detailed below:

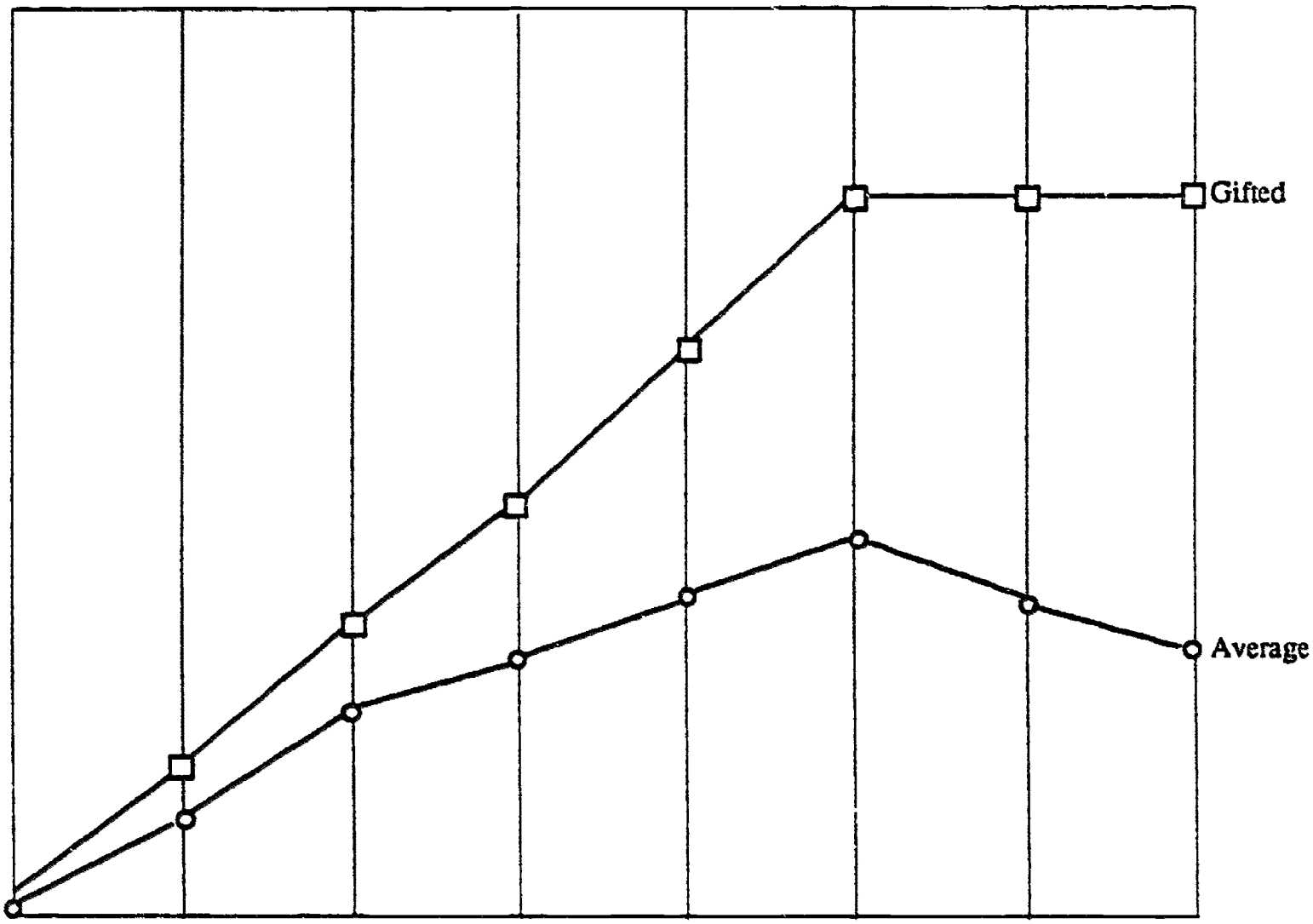
Research Skills

Gifted children need research skills in order to access and manipulate information. They need to collect data directly from subjects or objects, from books, from displays of data such as charts and maps, and through such tools as film and computers. Research skills for the gifted include the following:

1. *Advanced library skills:* Use of periodicals, newspapers, computer databases, and nonbook sources such as questionnaires, interviews, government documents, or materials gathered from industry or commerce.

Example: Use of the encyclopedia to gain information about lemming migration and the impact this has on their population.

FIGURE 6.1: DIFFERENCES IN LEARNING TRAJECTORIES OF GIFTED AND AVERAGE STUDENTS



□ = Gifted
O = Average

Source: Extrapolated from Scruggs and Mastropieri (1988)

2. *Data interpretation:* Use of graphs, charts, maps, tables, simple statistics, and research design.

Example: Constructing a graph to display how many family members each child in the class has.

3. *Reporting skills:* Use of spatial learning strategies such as webs or concept maps as well as outlines and note cards to structure research; notetaking; and referencing.

Example: Making a web from questions about solids, liquids, and gases and converting them to a single outline by paraphrasing them and putting them into a logical order to guide research.

4. *Scientific methodology:* Skill in raising questions and using tools for investigation (observing, inferring, comparing, classifying, measuring, predicting, hypothesizing, controlling variables, and experimenting).

Example: Designing an experiment to determine the types of foods on which molds grow.

5. *Technology:* Use of photography, video production, and computers as tools to enhance learning.

Example: making a slide tape of the growth of molds on different types of foods.

6. *An attitude of inquiry:* Posing of questions and problems as well as trying to find answers to problems.

Example: Asking children to list all the questions they can think of related to changes in temperature.

Higher-Order Thinking Skills

Gifted children are characterized by their ability to absorb, generalize, organize, transform, and apply abstract concepts—all higher levels of thinking. Asking children to simply demonstrate memory or comprehension is not sufficiently challenging. Teachers can employ questioning strategies that stretch the thinking processes of individuals, small groups, or the entire class through:

1. *Analyzing information:* Breaking information into component parts; for example, solving a multiple-step math story problem.
2. *Thinking convergently:* Bringing information together to provide a complete answer on a closed-ended topic; for example, considering the question What are the causes for the changing seasons?
3. *Synthesizing infomation:* Organizing, abstracting, and adding elements not inherent in the data, for example, creating a landscape design for the schoolyard and explaining the choice of plants, forms, and spaces.
4. *Thinking divergently:* Considering other possibilities in an open-ended topic, for example, What would happen if...? or How many other ways can...?
5. *Evaluating information:* Establishing criteria and making judgments; for example, considering How can we judge the quality of this art project?
6. *Making inferences:* Making an educated guess about what is occurring from observations. For example, "I think X is occurring because of Y (observation)" or "I think it is going to rain because there are big cumulus clouds in the sky and the wind is changing direction."
7. *Making generalizations:* Using particulars to find a pattern and build a rule that fits all; for example, having kept a log of the weather in Eugene for a month, make a generalization about the nature of weather patterns for this region.
8. *Making decisions:* Using the facts and weighing the evidence to select an object, strategy, or action. For example, deciding how to use the funds collected through the newspaper drive.
9. *Using metacognition:* Having an awareness of how we think to monitor, plan, and control our activities and thoughts. For example, helping a child to monitor his pacing during a timed test, plan strategies for finding information for a report, or control which type of thinking process he selects for solving a particular problem.
10. *Using various languages of thought:* Using verbal, symbolic, figural, bodily-kinesthetic, and emotional modes of thought to understand something, remember it, or synthesize information. For example, to order fractions from greatest to least requires switching from a symbolic mode (the numbers) to a figural (picture) mode to visualize the quantity each fraction represents.

Creativity

In order to develop flexible approaches, generate new information, and improve ideas or products, creative thinking skills are needed. Attitudes of curiosity, openness, risk-taking, and perspective-taking are important to cultivate. A sense of purpose and of what the final product will be is a characteristic of creative individuals (see Gruber 1981). When a child is intensely engaged in a project, it is helpful if time limits can be flexible and the child's efforts can be supported. Helping children find systematic ways to solve problems is also useful. Teachers should help children develop aesthetic appreciation of the world around them in order to be open to creative possibilities.

Ethical issues also are important. Creativity without ethics may lead to such developments as nuclear catastrophes, genocide, or destruction of the planet.

Some components of creativity are as follows:

1. *Fluency:* Generating many ideas; for example, listing all the words children can think of that they associate with "snow."
2. *Flexibility:* Changing categories; for example, grouping their lists of responses to "snow" into different categories or classes and recognizing that the same word might fit into several categories.
3. *Originality:* Differing from the standard answers; for example, comparing their lists to others in the class. Each child discovers which words were chosen by him or her alone.
4. *Elaboration:* Modification for improvement; for example, making poems about snow, considering senses, feelings, and images, or cutting a very intricate snowflake from folded paper.
5. *Curiosity:* Inquiring and attempting to discover relationships; for example, wondering whether all snowflakes really are different.

Communication Skills

Teachers can assist gifted children in developing their communication skills in order to share their ideas and information through activities such as the following:

1. *Writing:* Stories, essays, poetry, journals, books, letters for information or opinion, or writing at the end of a class to assist in thinking. An example is weekly writing themes relating to ongoing curriculum. When the class is studying an herb garden, the writing theme might be a cookbook.

2. *Other ideas:* Photography, tapes, radio and TV production, theater, art, dance, body language, or foreign languages. For example, a group of gifted children might make a daily five-minute radio news program to be broadcast to the first- and second-grade classes.

Study Skills

Gifted children need help to develop good study skills such as:

1. Planning
2. Use of time
3. Establishing habits
4. Organizing
5. Keeping notebooks and journals
6. Becoming responsible

Modifying Products

Programs for the gifted should be product-oriented, according to Renzulli (1977a), because development of products involves planning, conceptualizing an end point, and working toward a goal. Gifted children who are accustomed to success with very little effort or who have many diverse interests may fail to gain the satisfaction that comes from reaching closure. Products of gifted children also serve as an important basis for evaluation of child progress.

Role of the Teacher

The teacher's role is finding legitimate outlets for childrens' works, suggesting interesting and unusual formats, providing materials and supplies, suggesting "how to do it" books that assist children in doing their projects, and monitoring children's activities throughout the development of a product.

Assisting children in product development need not place undue demands on the teacher. For example, a gifted child can be directed to develop creative ideas by working with an older gifted student to publish an article in the school newspaper. If the class is studying communication, the gifted child could do a class survey and report on whether television or radio draws the larger audience.

Variety of Products

Any assignment should result in useful products, not just a churning out of repetitive information. Products should be shared with others interested in them, not necessarily with the whole class. This means that appropriate outlets must be found for sharing them. A variety of choices should be offered. Instead of the same old book report, for example, product choices could involve:

- mini books (1 1/2" x 3")
- characterizations (for example, an event at which children present stories dressed as a favorite character)
- diorama
- additional chapter to the book
- transformation of book to play form
- alternative ending
- video of the author's process (child-portrayed)
- story boarding of sequence

Commitment to Quality, Accuracy, Thoroughness

When a product is to be shared, it should represent the child's best efforts by being neat, well-organized, and free of errors, with an attractive format (pictures, charts, tables, or photos). Volunteers, classroom aides, and parent helpers can assist in bringing products to their final form.

Self-Direction and Selection by Children

If at all possible, children should be encouraged to select the product format they will produce. Skills that help children become self-directed are a focal point of gifted education. Time management, developing learning contracts, and negotiating exemplify skills essential in both development of a product and autonomy.

(Note: Extensive portions of this chapter were derived from Cohen, L., DeBuse, M., and Prober, P. [1989b] and from Cohen [1987c].)

Chapter 7

UNDERSTANDING THE INTERESTS OF YOUNG DEVELOPMENTALLY ADVANCED CHILDREN

The personality characteristics that most consistently differentiate young gifted children from their average peers are their early and intense interests and the perseverance, enthusiasm, and energy to pursue them (Terman 1925, Thorndike 1939, James and Robinson 1985). Yet very little research has been done on the interests of gifted children with the exception of the longitudinal work of Cohen (1987a, 1987b, 1987c, 1987d, 1988a, 1988b, 1989a, in press) and her students (Brick 1988; Gelbrich 1989, in press; Kingman 1989).

Piaget (1970, 1977) noted that interests are engaging to a child because they help to restore an equilibrium as well as energize activity. In other words, interests are responses to imbalances or disequilibria. He said that interests control intellectual functioning, helping the child to build structures and wholes. Furthermore, he stated that all learning rests on interests, a fact also noted by Whitmore (1987), who described the rapidity and ease with which even underachieving gifted children learn when interested.

TWO TYPES OF INTERESTS

We distinguished two types of interests in young children (Cohen 1988b), dependent on the source of the stimulus.

Type I—External Stimulus

Type I interests are responses to novelty in the environment, and the function of such interest is adaptation to meet changes in the environment. Interest in new objects and aspects or events of the environment—for example, a present, a new pet, or a new experience, such as skiing—stimulate intense curiosity and interest.

Type II—Internal Stimulus

Type II interests are responses to internal disequilibria or imbalances; they are long term and intense. They are provoked through an internal stimulus—imbalances among and between systems (knowledge, affect, purpose, physical, and perceptual systems) that lead to BIG QUESTIONS the child must pursue in order to regulate and balance himself or herself in the environment. The function is self-regulation, which is also adaptive, bringing one's systems into a balance.

Type II interests are characterized by:

1. Involvements that endure over long periods (over two months in a child over age 2)
2. Intensity of attention and unwillingness to leave the activity
3. Question- or problem-focused with a willingness to tackle difficulties
4. Expanding to ever-widening areas with the development of infantile expertise, and permeable to other areas of life
5. Fantasy life focusing on the interest
6. Pleasure and excitement (Cohen 1988b)

PATTERNS OF INTEREST DEVELOPMENT

Interests develop at the "center of action" (Cohen 1985) where the child's neurological and biological inheritance meets events in the social and physical environment, forming around disequilibria (imbal-

ances). Rather than random occurrences, these interests were found to be structured around themes, the core, the constant and recurring motif that gives coherence to the evolving interests (Ferrara 1984). They are hypothesized to arise from deep disequilibria or imbalances at the unconscious level among or within systems, compelling a quest.

Themes are these major questions or quests around which one organizes one's interests, one's systems, and one's life in an attempt to make sense of the world and one's place in it. Themes give a pattern to interests, serving as vectors or trajectories for interest development. For the bright children observed, themes are quite evident by age four, and for a few, even earlier.

Themes and Variations

Six major themes and their variations were found in the subjects studied (Cohen 1988b, Cohen in press). They are (1) control, (2) nature/nurture, (3) putting it all together, (4) people/ relationships, (5) aesthetic/expressive, and (6) symbols and symbol systems. In each theme, the following variations were found:

Theme 1 Variations: Control

1. Control—The child wants to be in charge of the self and the world, seen in such interests as being Superman, or conducting an orchestra.
2. Mastery—The child practices gymnastics, a piece of music, or drawing horses to perfect them.
3. Action/Movement—Playing ball, running, jumping, dancing, and so forth.
4. Power—Interest in objects of power external to the child, such as cars, volcanoes, or mask figures.
5. Rules/Order/Limits—The parameters, requirements, structure, and organization of things, events, feelings.
6. Adventure/Exploration—The child seeks opportunities to explore or adventure independently. "Leave me here in the woods; I want to explore" (girl, age 3 1/2).
7. Independence/Do it myself—"I dood it myself!"; attempts at dressing, feeding, reading.
8. Getting Attention—"Look at me, watch me!"; constant calling attention to self.
9. Experimentation—The child sets up experiments and tries to prove her hypothesis; "When I leave these mushrooms in water, they will turn blue."

Theme 2 Variations: Nature-Nurture

1. Nature—A profound interest in plants, animals and other aspects of the natural world.
2. Nurture—Caring for, loving, dressing. The child makes a habitat for the baby fish in the creek, dresses her cat, hugs and cuddles her doll.
3. Belonging—Concern with being part of groups, particularly families.

Theme 3 Variations: Putting It All Together

1. Putting it all together—Seen as interest in puzzles, Legos or blocks, maps and globes.
2. Meaning/function of objects—What is it? What does this do?
3. How things work—Asking questions about, or taking things apart to figure out how things work.
4. Relationships—Cause and effect (not social), such as interest in light switches and computer keys. "What happens if I hit two keys at the same time?"
5. Origins—How things begin. "What was the very first seed?"
6. Transformations—Interest in transformer toys, costumes and dressing up, clay play.
7. Understanding world/life—Interest in people, languages of different lands, life cycles.
8. Experimenting with objects—"What happens if I put water in the gas tank?"

Theme 4 Variations: People/Relationships

1. People puzzles—The child spends considerable time observing people and asking questions about their behavior; "Why is that man shouting at the lady?"
2. People relationships—Interests in relating to people; understanding family roles and relationships; "Who is Daddy's brother to me?"
3. Being liked.
4. Friends/Companionship.
5. Communicating—Getting one's ideas across; "It's my turn to tell a story."
6. Morality—Concern with good/bad; proper behavior; world problems.
7. Feelings —Awareness and sensitivity to how another feels; "Are you sad, Mommy?"
8. Imitation—Doing what mommy or daddy does; sitting at his desk and working on his papers while mom marks tests.

9. Roles—Taking on different roles, such as being Cinderella or the Big Bad Wolf.
10. Helping people—Setting the table; offering to help with cooking; washing the car; helping grandpa cross the street.

Theme 5 Variations: Aesthetic/Expressive

1. Aesthetic—Sensitivity to and delight in beauty and appreciation of the arts; making subtle observations; openness to the world. A 2 1/2 year old says, "Mommy, see how the artist painted the shadow of the birds on the sand? How pretty it is!"
2. Artistic expression—Expression through the visual arts.
3. Musical expression—Expression through music.
4. Expression (general)—Combining areas of expression such as art and song; acting; expressive body movement.
5. Sensuality—The child revels in pleasures to the senses; rubbing a blanket over her cheek; delighting in tasting something.
6. Expressing feelings—The child lets her feelings be known (as opposed to interest in other's feelings (see Theme 4, Variation 7).

Theme 6 Variations: Symbols and Symbol Systems

1. Cognitive skill acquisition—The child works on learning about words, letters, numbers.
2. Meaning/Function (Semantic)—What does P-A-B mean? What does this mark (') do?
3. Representations—Interest in how different languages are written; images.
4. Symbols—Interest in what symbols stand for; decoding; wanting to learn different ways to say or write a word or number.
5. Abstractions—Looking for mathematical or other relationships.

Determining the Theme

The same interest may evidence different themes. The theme is determined through studying the activity of the child, the fantasy play, and the questions (inferred or asked) in an interest over time. For example, many children are interested in animals, but this interest could actually evidence any of the six themes:

Theme 1—*Control*: Teaching the dog to sit, roll over.

Theme 2—*Nature-Nurture*: Petting, hugging, cuddling pet; dressing it up; making habitats for it.

Theme 3—*Putting-It-All-Together*: Learning all about the members of the cat family, whale family.

Theme 4—*People/Relationships*: Unlikely here—perhaps how people look like/are like animals or role playing; humanizing animals.

Theme 5—*Aesthetic/Expressive*: Drawing horses; pleasure in colors and beauty of birds or butterflies.

Theme 6—*Symbology*: Writing lists of animals; spelling names; reading about animals.

Sometimes an interest may be an aspect of more than one theme. For example, one ten year old's passion for horses for three-and-one-half years brings together her nature-nurture theme (petting, brushing, picking hooves, feeding carrots, apples), her control-independence theme (riding, jumping), and her aesthetic-expressive theme (she draws and sculpts horses constantly and has made over 500 horse drawings over the years). When an interest meets at the confluence of several themes, it appears to be very intense and of long duration.

THE UNIVERSAL CONTROL THEME

Every child studied exhibited at least one variation of Theme I, Control. This theme appears to be basic to healthy development, an aspect of self-regulation, the gaining of control of the self and the world (Cohen 1989a).

Finding the control theme or variations of it in all thirty-two bright young subjects was unexpected, since control and power are more typically associated with masculinity (Forisha 1978). The only significant difference here was that boys were more interested in the power variation, operationalized as interest in objects with force, speed, and mobility external to them, such as cars, jets, or volcanoes; 52.9 percent of the boys and only 20 percent of the girls demonstrated this theme variation.

Whether the control theme is found in all young children or in just gifted-creative ones should be researched. This control theme is evidence of the attempt to regulate the self and the world in which one functions.

INTERESTS, INNER CONFLICT, AND SELF-REGULATION

Interactions in the environment (both social and physical) as well as interactions within and among one's systems lead to pursuit of certain big questions, the quests underlying the themes, displayed through intense pursuit of interests. An interest is the observable manifestation of the theme or themes. Interests offer the child the opportunity to bring to consciousness unconscious elements.

When a child is deeply involved in a particular pursuit, her fantasies and thoughts focus on that area. Through involvement in self-selected interests, the child deals with the inner struggles going on, much as Bettleheim (1977) suggested in the child's fascination with particular fairy tales. We can think of these struggles in the unconscious as disequilibria, or imbalances to the systems. Through these involvements, the child regulates herself.

Interests, like fairy tales, help the child find solutions to pressing difficulties. As with fairy tales, when a child has gained all she can from a particular interest, either because the problem has been resolved, or she has found a better interest to deal with the conflict, she may temporarily (or permanently) drop that interest and enjoy another one, usually based on the same theme or another dominant theme.

And as Bettleheim noted with fairy tales, interests should not be explained or regulated by adults. We have to "find meaning in life, security in ourselves by having understood and solved personal problems on our own, not by having them explained by others" (Bettleheim 1977).

Interests help a child to develop a self-concept as well as resolve inner conflicts. Abroms (1983) noted that self-concept derives from the integration of all the child's experiences and images: the physical self and how the body functions; the social self and how one is perceived and responded to by others; the real self and how one compares with others; and the ideal self and the image of what one aspires to—one's abilities, attitudes, relationships.

When a child explores an interest in depth, whether it is being a fireman, understanding volcanoes, manipulating numbers, or playing a violin, the working through of the disequilibrium Piaget described is a way of integrating one's experiences and images and resolving unconscious conflicts.

Abroms (1983) noted that self-image is jeopardized by discrepancies between the real self and the ideal self. When a child aspires to being a powerful, helpful fireman, for example, he is trying to attain his ideal self. This interest and the fantasy of being helpful, brave and strong help the little child deal with his own feelings of helplessness, fear and weakness, his real self. Clearly, supporting interests is both important and necessary for the development of a healthy self-concept.

IMPLICATIONS FOR PARENTS AND TEACHERS

Parents and teachers should tune in to the child's involvements. The young child's interests are very important and represent an attempt to regulate the self and gain equilibrium by answering important questions for him or herself. Parents and teachers can help facilitate interests by exposing the child to new ideas and interests, supporting direct requests for help, extending the interest, and figuring out the profound questions.

Exposing the Child to New Ideas and Interests

Young children should be exposed to many experiences that may open new doors to interest involvement. The more the themes are involved, the more likely is a long-term engagement in a new interest, representing a shift from Type I to Type II interests.

Supporting Direct Requests for Help

Loving adults should support the child's direct requests for help. "Can you help me tear off the Scotch tape?" or "Please help me make jerked venison."

Extending the Interest

When a child is interested in a particular area, the teacher or parent can offer a toy, game, book, or material that extends the understandings about that interest or links the interest to a related area. For example, a kindergartner fascinated with frogs could be offered a book about amphibians and read to about toads or salamanders. She might go to a pet store to look at different types of amphibians. She might be read a book about reptiles to see whether lizards, turtles, and snakes are also of interest. Other children's interests can be extended by getting books

about a topic of involvement from the library, offering a simple motor for Lego materials, or showing a child how to make a wax resist of crayon and watercolors.

Figuring Out the Profound Questions

Finally, the involvements can be observed and the child's deep questions figured out, with an offer of a question, a book, or an extension to a new interest at the right moment. It is important for the adult to allow the child to satisfy her own question. Wait until the activity is waning before offering an extension. The important thing is not to impose on the work of the child the answering of his own quest.

For example, the little girl interested in frogs described above might have a deep question about nurturing animals. At the same time, she may be concerned about being such a little child. Learning about, taking care of, and being in charge of small animals gives her a sense of power and control.

Teachers could teach to interest-themes: some with the whole class, perhaps as thematic units; others for individual children, perhaps through theme centers. For example, if a child has a putting-it-all-together theme, he might especially enjoy geography, music, geometric puzzles, or attribute games, learning about the boundaries—the biggest, smallest, oldest, tallest, loudest, or softest. Such a child might relish techniques such as mind mapping, webbing, finding associations or relationships, using reflective abstraction or putting into relationship, or synthesizing (Cohen 1985, 1987c).

For children with a power variation on the control theme, rocketry, aviation, and volcanoes are naturals. Such children (or those with a control theme) would enjoy fantasizing about the magical power they would most want in a story they write. Ideas for teaching and parenting to interest-themes will be discussed in chapter 8.

RELATIONSHIP TO ADULT CREATIVITY AND PRODUCTIVITY

It may be that the themes of early childhood establish the "centers of action," the focal points for interest development, or what Gruber (1981) calls "enterprises" in adult creators. These enterprises could be traced backward (as Ferrara [1984] and Wallace [1985] have done with adults) to determine what the earliest themes are. This becomes increasingly difficult the older the creator is, or if he or she is no longer alive. The involvements of very early childhood for these individuals can only be speculated upon. Yet a passionate interest in making order out of marbles in a bag, putting all the blocks into a box in a particular way, or arranging the crayons by colors by a twenty-three-month-old baby may be an indication of a lifetime of involvement with making order of disparate ideas, a theme for a lifetime.

Chapter 8

ORGANIZING FOR INSTRUCTION

Gifted children's instructional needs can be met in the regular classroom when it is organized to encourage independence. Because so much is constantly added to the curriculum and very little is ever deleted, the teacher is faced with trying to cover much territory in limited time. By teaching thematically and/or by using learning centers to offer choices that meet both academic and interest needs, the primary or kindergarten teacher can meet the needs of all children in the classroom.

In addition, grouping gifted children together for part of their day is necessary. This social aspect will be discussed in the next chapter.

THEMATIC TEACHING

One way to deliver differentiated instruction is thematic teaching. A theme provides a focal point for planning. Students achieve more in basic skills and retain more of the subject content when teachers integrate the subject areas (Kaplan 1986). Themes are different from units in that they cross subject lines and integrate elements from several subjects—see Appendix I for suggested Broad-Based Themes. In addition, teaching thematically provides parameters necessary to structure the child's questions and investigations and to allow exploration of individual interests and concerns.

Planning Around Themes

An effective planning technique to be used in conjunction with a theme, question, or issue is called *webbing* (see figure 8.1: First-Grade Planning Web). In webbing, the concepts, skills, and processes are interrelated. Children can and should be involved in the webbing process. Other spatial learning strategies can also be helpful (see figure 8.2: Groups of Patterns). Learning activities, community resources, projects, research, reading material, math problems, and so forth are planned around the theme.

Themes last for varied lengths of time. They may last for as little as a week or two or for up to a year. Since gifted children typically sustain interest in a subject for an extensive time, themes that last longer may better suit them.

Thematic Teaching Options

Thematic teaching can occur in several ways. Choosing an option will depend on whether a teacher, a grade level, a school, or a district undertakes the process of teaching thematically.

1. A single teacher decides to develop integrated, thematic units and develops his or her yearly plan by relating the skills and concepts he is required to teach to one or more themes.
2. A grade level elects to plan according to a theme. They may select a specific theme, for example, "journeys," to be their grade-level theme year after year or they may select a different theme each term or year.
3. A theme is explored schoolwide for a year. The content and complexity of the studies would vary according to grade level or grouping method.
4. A district selects specific grade-level themes to be covered or it undertakes a districtwide study of one theme at all the grade levels.

Essential Learning Skills and Common Curriculum Goals

A grid was used to juxtapose Essential Learning Skills; Common Curriculum Goals; and the process, product, and content modifications suitable for young gifted students. This grid, contained in three tables presented in this chapter, is adapted from Kaplan's (1986) grid for developing differentiated curriculum. The learning activities are organized according to their dominant subject area. This organizational structure was used as a matter of convenience. The Essential Learning Skills and Common Curriculum Goals are also organized by subject area. However, the interdisciplinary nature of themes frees the teacher from thinking along rigid subject lines.

The planning grid provides the teacher with activities related to sample themes and identifies the underlying skills introduced and reinforced for each.

FIGURE 8.1: FIRST-GRADE PLANNING WEB

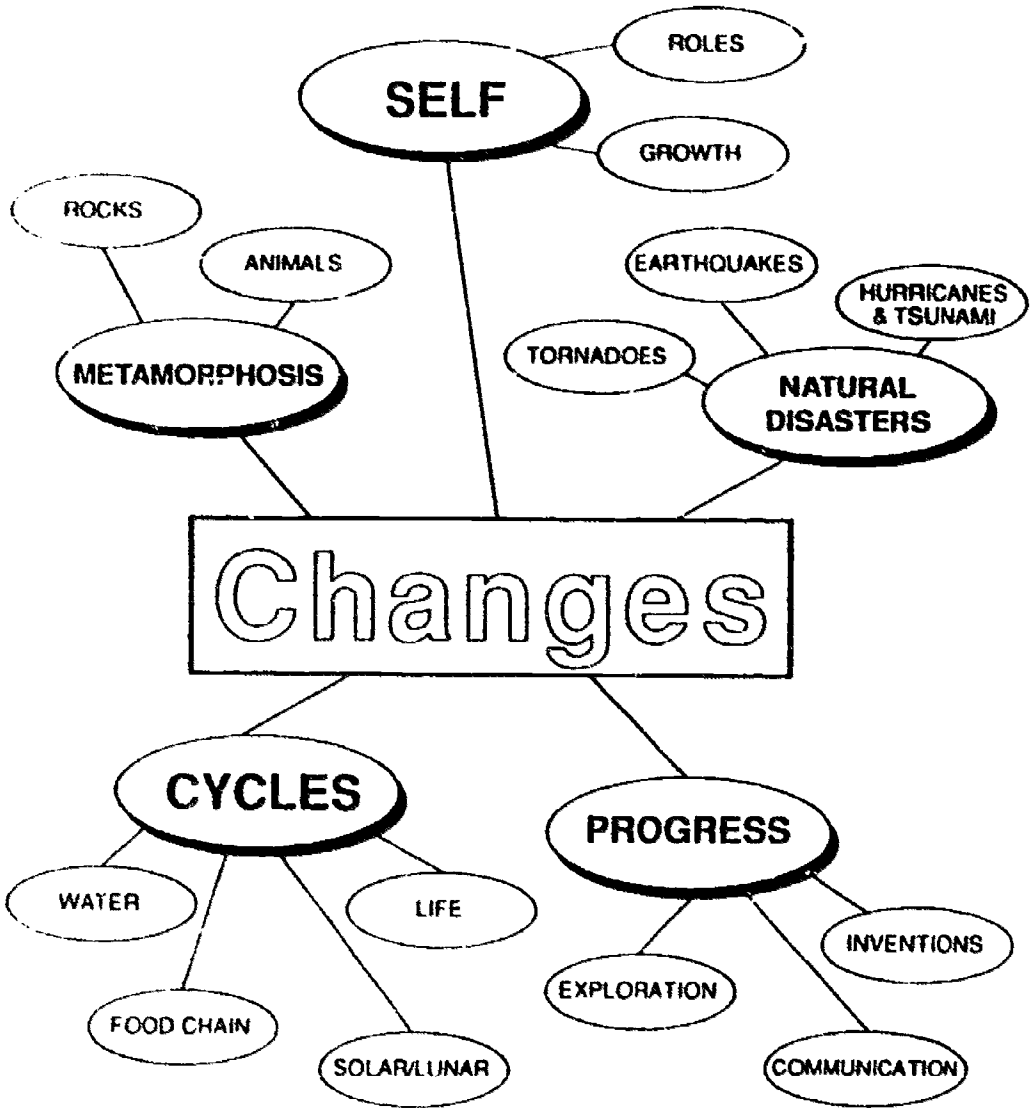
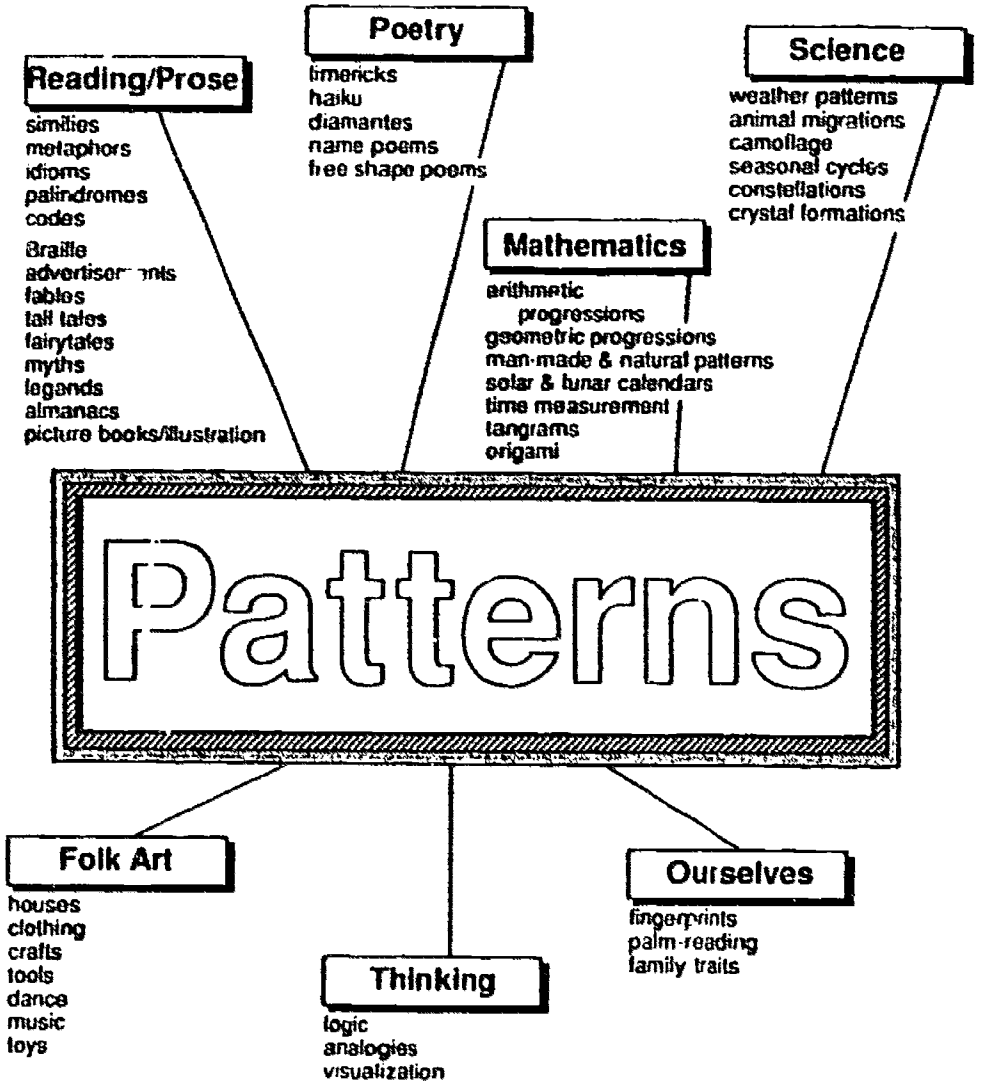


FIGURE 8.2: GROUPS OF PATTERNS



Teachers may wish to expand the grid or develop their own around another theme. The steps for developing such a grid are as follows:

1. Review required courses of study for the grade level, listing these in columns under content area headings, such as Social Studies, Science, Health, Literature, Art, Music, and Physical Education.
2. Look across the topics under each heading. Are there any that begin to "swim" together? Can you find a theme that fits several subjects at once? Rearrange the order if necessary. Social studies is often a good starting base, because frequently there is a logical chronological order.
3. Begin planning by generating questions and concepts around the theme, trying to incorporate as many skills and required curricular units as possible.
4. Refer to the Essential Learning Skills to identify the basic required skills that must be taught to all the children and list them.

A kindergarten teacher, for example, might plan around a theme of "Me," incorporating science units on body parts and on senses with a social studies unit on family tied together with math, reading/language arts, music, and art experiences.

Similarities and Differences—A Kindergarten Theme

Another possible thematic option from which to develop integrated, thematic units throughout one year is Similarities and Differences. Kindergarten-aged students are required to distinguish among letter sounds, mathematical symbols, and many other aspects of their world. An underlying theme of Similarities and Differences will provide a basis for continual investigation and identification of general characteristics of objects and what makes them similar and different from one another. The exploration of Similarities and Differences leads into classification, comparison, and all kinds of activities and discussions.

One way to use an overall theme of Similarities and Differences might be to choose three different cultures to compare and explore throughout the year. Part of those explorations of culture might include a comparison of fairy tales. Students could look at different illustrations, different cultural versions, and authors of different cultural backgrounds. Another area for comparison might focus on buildings.

The grid in table 8.1 offers several activities based on an underlying theme of Similarities and Differences, using Kaplan's content, process, product approach. It is meant only as an example. Teachers may wish to develop their own activities according to this or a different theme.

Changes—A Grade 1 Theme

A first-grade teacher might opt to plan the year's curriculum around the theme of "Changes." First graders are probably attending a full day of public school for the first time. Many new demands are placed on them. The theme Changes offers an opportunity for much self-study so appropriate for youngsters at this egocentric stage. At the same time, change is ubiquitous and can lead the children into a multitude of studies about the world around them.

For examples of activities based on the theme of Changes, see the grid in table 8.2.

Planning around the theme should involve the students. Much diagnosis of students' knowledge and interests can occur during a group webbing session. Ask the students questions. What is change? Can they see it? What has changed about themselves? Is there anything that does not change?

A planning web can develop and expand over time. A few introductory and ongoing activities will help to formulate students' understanding of the theme as well as trigger new interests. Here are some examples of such activities:

- Have students create a graphic timeline describing changes in their development from birth to six years of age.
- Germinate alfalfa or radish seeds or plant an herb garden while they observe and illustrate the changes they see daily.
- Have students keep a journal with descriptions of changes in the classroom environment or seasonal changes.
- Keep a class record of teeth lost.
- Make a classroom collection of things that do not seem to change (fingerprints and bloodtype provide two interesting examples).

Further development and extension of the central theme Changes can incorporate individual interests in learning centers and self-selected projects. While the teacher may provide activities that are important for all the children to engage in, themes and learning centers couple to supply opportunities for each child to pursue his or her own area of interest. Consider the

underlying interest-themes described in chapter 7. A few activities that derive from this theme of Changes related to interest-themes are as follows:

- A study of how urban development affects animal pecking order or the food chain would be of interest to children with a strong control theme.
- A child pursuing an interest in nature/nurture might want to observe changes in animal adaptation. Incubating eggs and watching them hatch would satisfy the interests of this child.
- A child characterized by an aesthetic/expressive interest would rather work at the art center mixing colors and exploring how different shades are created.
- Learning how one change affects another is the domain of the putting-it-all-together theme. A science center where a child may experiment with changes of form and state would be appropriate. For example, allow the children to work with pottery clay; leave their work out to dry and eventually fire some of their creations or experiment with warm and cold plasticine clay. Mix substances with water. Why do some dissolve while others settle?
- Providing a tape recorder with a blank cassette affords the child interested in people/ relationships or with an expressive theme an opportunity to experiment with voice changes, dramatic readings, interviews of classmates and visitors to the classroom.
- Create a display of different alphabets for the child who loves symbols. Allow him/her to discover how some Greek letters were changed and are used today in our alphabet.

These are but a few ideas of how to extend and individualize learning experiences planned around a central theme. For more suggestions, refer to the first-grade planning web in figure 8.1.

Patterns—Grade 2

The suggested second-grade theme "Patterns" incorporates both "Similarities and Differences" and "Changes." Like the other two themes, "Patterns" yields a wealth of real-world topics to explore. The planning grid in table 8.3 offers suggestions for differentiating the curriculum. In addition, the teacher should look for ways to extend the learning and provide individualized options based on the students' interests. Additional examples of patterns are displayed graphically in figure 8.2.

- Studies of weather patterns, growth cycles, and a variety of literature that examines issues of power such as tall tales, myths, and legends will fascinate the child with a control interest.
- Children who share an interest in nature/nurture will enjoy opportunities to investigate patterns of animal migrations or how animals camoflage themselves. Films and slides are useful as well as clay and a collection of natural objects to create their own animal habitats.
- The aesthetic/expressive child might enjoy rhythms, setting poems to music, and creating various patterned art at the art center.
- A visual display of different types of architecture and buildings can trigger the interests of a child who pursues a putting-it-all-together theme. Set up an area where this child can work with blocks, Legos, and other building materials to further extend the child's interests. Tangrams are a fun extension of this activity in geometry.
- An interest in people/relationships can spark drama projects such as acting out folktales, creating scenes, and writing dialogue.
- A center for breaking codes and creating palindromes will delight the child with an interest in symbols.

Many other activities and centers can be spun around this theme.

LEARNING CENTERS: TEACHING TO INTEREST THEMES

Learning centers provide opportunities for the children to explore topics of interest independently and at their own rate. They can interest and benefit all the children in the classroom. Learning centers ensure that students are able to move at a pace appropriate to their abilities, while encouraging them to become self-directed through stimulating and purposeful activities.

Learning centers can be used to provide individualized activities related to a theme, or they may be used independently of a theme. The teacher may administer interest inventories to the children to help in determining specific activities of interest to the children.

Another way to determine children's interest-themes is to set up six learning centers, one for each

TABLE 8.1: KINDERGARTEN THEME: SIMILARITIES AND DIFFERENCES

Essential Learning Skills	Concept/Context	Process: Higher-Level Thinking Skills (Enrichment)	Process: Research Skills	Products
5. Generate, organize, express and evaluate ideas. 1.5 Recognize and use geometric patterns, relationships and principles to describe and classify.	*Introductory* Examples of similarities and differences *Math*	Identify essential characteristics that lead to classification.	Use magazines, pictures and picture books to locate examples.	Organize geometric shapes according to similarities and differences; explain.
6.1(a) Identify general characteristics of objects which make them similar and different from one another.	*Social Studies* *Math* (charts) Similarities and differences occur among people.	Apply similarities and differences to the characteristics of people. Represent information in chart form.	Conduct interviews to gain information.	Construct a classroom chart that lists characteristics of each child. Check for similarities and differences.
2.1 Identify main ideas, supporting details, facts and opinions presented in written, oral and visual formats.	*Language Arts—Reading* The same story may be interpreted differently by different people as evidenced by illustrations.	Investigate and analyze the use of illustrations in a sampling of several fairy tales.	Use picture books to compare illustrations of several versions of the same fairy tale.	Explain how illustrations vary the experience of sharing a picture book.
5. Generate, organize, express and evaluate ideas. 6.1(a) Identify characteristics of objects which make them similar and different from one another.	*Science—Art* Nature is full of similarities and differences.	Find the similarities of animals as a group, then compare differences within the group.	Research different categories of animals through personal experience and perhaps a trip to the zoo. Use magazines to locate examples.	Construct a collage of pictures of animals according to similarities and differences.
4.3 Distinguish and interpret sounds of nature, language, music and environment.	*Science* Similarities and differences in nature	Identify different sounds that occur in nature.	Draw logical conclusions from information presented.	Discuss whether different sounds occur in nature or are man made.
6.1(a) Identify general characteristics of objects that make them similar and different from one another.	*Language Arts—Reading* Similarities and differences occur in language	Discuss how language patterns may be similar in different languages.	Use resources available such as bilingual students.	Point out similarities and differences in English and in words from different languages that have the same meaning.

TABLE 8.1: KINDERGARTEN THEME: SIMILARITIES AND DIFFERENCES (Continued)

Essential Learning Skills	Concept/Context	Process: Higher-Level Thinking Skills (Enrichment)	Process: Research Skills	Products
3.1 Comprehend the implied meanings of written, oral and visual communication.	*Math—Social Studies* Similarities and differences occur in cultures.	Investigate explanations for differing buildings, family structures, and governments around the world.	Use magazines, picture books, and encyclopedias to find different examples.	Construct different structures from different cultures with blocks (pyramids, castles, skyscrapers, homes).
4.3 Distinguish and interpret sounds of nature, language, music and environment.	*Physical Education—Art* Dance has differing meanings in other cultures and times.	Synthesize your own dance based on a series of familiar (or original) moves.	Research different types of dances used at different periods of time.	Participate in a dance movement.
5. Generate, organize, express and evaluate ideas.	*Language Arts—Reading* Similar fairy tales exist in different cultures.	Compare and discuss impressions of a similar story.	Use library to locate fairy tales.	Present "favorite fairytales" providing visuals.
6.1(a) Identify general characteristics of objects which make them similar and different from one another.	*Science* Leaves show similarities and differences in form.	Examine and discuss similarities and differences in leaves.	Collect and classify data.	Construct a collage from different leaves found outdoors.

TABLE 8.2: GRADE 1 THEME: CHANGES

Essential Learning Skills	Concept/Context	Process: Higher-Level Thinking Skills (Enrichment)	Process: Research Skills	Products
1.1 Recognize words commonly used in grade-level materials.	*Reading* Read about change: Topics include natural disasters, explorations, biographies, etc.	Compare a change read about to a change in one's own life.	Use pictures, picture books, and texts to gain information.	Report orally on a comparison of a book and a real-life event.
1.2 Determine unknown words in grade-level materials.	Generate language-experience charts using words related to a topic or theme.	Redefine new vocabulary words in simpler terms and choose which words to use in context in creative or factual writing.	Use a class word book, chart, glossary, or dictionary to gain information.	Write a fictional or factual piece.
1.4 Use numbers/numeric figures, letters, symbols and visuals to count, compute and communicate quantitative AND 1.7 Estimate and measure quantities, define problems, develop hypotheses, select methods of computation, and solve problems.	*Science* Plants change as they grow.	Experiment to determine what variables effect plant's growth. Observe and (pictorially) record change.	Keep daily records of plant growth via measurement, verbal descriptions, and drawings.	Chart plant growth and provide a visual description via sketches and a bar graph to indicate height.
	Science-Math-Writing Children's growth and development represent change.	Compare height and weight differences monthly. Estimate height/weight at end of school year, etc. Make predictions of adult height based on parents, siblings, etc.	Keep accurate records of data observed and measured.	Prepare a scrapbook logging physical growth as well as academic milestones OR Create a timeline describing self through visual and written means at various stages of development.
2.1 Identify main ideas, supporting details and facts, and opinions presented in written and oral formats.	*Science* Metamorphosis is purposeful change.	Make predictions about the changes occurring based on observations AND identify and correctly sequence the stages of change.	Observe and collect data (daily descriptions such as drawings, photos, and written descriptions) of a caterpillar metamorphizing.	Create a biography of a butterfly by illustrating and explaining orally each stage of development OR Make a collection of butterflies and moths.
2.2 Use instructional materials as basis for gaining knowledge and improving comprehension.	*Science* Change in form results in other changes	Relate how an animal which undergoes metamorphosis often interacts differently with its environment. Analyze characteristics of each stage of development which uniquely suit the animal to its environment.	Read to obtain information on where caterpillars and butterflies live. Use card catalog to locate such information.	Create illustrations of butterflies and caterpillars in their environment. Map the migration of Monarch Butterfly.

TABLE 8.2: GRADE 1 THEME: CHANGES (Continued)

Essential Learning Skills	Concept/Context	Process: Higher-Level Thinking Skills (Enrichment)	Process: Research Skills	Products
2.2 Use instructional materials as basis for gaining knowledge and comprehension.	*Science-Reading-Language Arts* Descriptions of animals can be artistic as well as scientific.	Compare factual information about butterflies to poetry and fictional passages about them. Distinguish fact from opinion.	Locate the poetry, fiction, and non-fiction selections of the school and/or public library. Use illustrations and observations to obtain information.	Create a shape poem on a caterpillar, moth, or butterfly.
2.3 Use oral communication to give or receive information and/or directions.	*Science* Changes can be understood as cause and effect.	Identify and paraphrase the causes and effects of an event in an experiment. Share information with others to clarify, gain assistance or gain further knowledge.	Keep records through verbal descriptions, descriptive drawings and flow charts.	Report orally on an experiment conducted.
4.1 (perhaps appropriate only for very advanced children at first grade) Determine the significance and accuracy of information. a. draw logical conclusions b. interpret communication through body gestures, tone, etc.	*Reading-Language Arts* Myths, legends, poetry and non-fiction attempt to explain changes in the sun's position relative to earth.	Compare and evaluate explanations of the sun's "travel" through the sky.	Locate and read (listen to) various selections about the sun.	Conduct a discussion with students playing parts of characters of stories they have read. Act out a story about the sun.
6.2 Generate and test hypotheses, interpretations, explanations and predictions AND 5.5 Select and use language when making oral presentations.	*Science* Cycles are changes which occur repetitively.	Justify and explain the changes which occur in a cycle; e.g., food chain, water cycle, Earth's revolution around the sun.	Locate factual information on a specific topic.	Report orally and present visuals to class or group.
7.1 Clarify purposes of an assignment AND 7.2 Use resources beyond the classroom (with adult help).	*Science-Social Studies* Inventions are solutions to problems. They make our lives easier and more productive.	Identify a problem which can be solved by an invention. Use reasoning skills to create an inventive solution to the problem.	Read about a famous inventor.	Build a working model of an invention. Describe its uses.

TABLE 8.3: GRADE 2 THEME: PATTERNS

Essential Learning Skills	Concept/Context	Process: Higher-Level Thinking Skills (Enrichment)	Process: Research Skills	Products
5—Generate, organize, express and evaluate ideas. 6—Use reasoning skills.	*Introductory* Examples of patterns and non-patterns. "What is a pattern?"	Identify essential characteristics that make up any pattern.	Use magazines, picture files and picture books to locate examples.	Extend a pattern vertically and horizontally to fill a page.
3.1—Comprehend implied meanings of written, oral and visual communications.	*Social Studies* Patterns can be visual, tactile and auditory. Patterns can be purposeful.	Discuss how language can be modified to accommodate handicapping conditions. Postulate other ways patterns may be useful.	Use an encyclopedia and/or other non-fiction materials.	Produce an original non-visual pattern.
6.1(a) Identify general characteristics of objects which make them similar or different from one another. Apply specific examples to a general rule.	*Science* Patterns occur in nature.	Apply the characteristic criteria of patterns to natural objects to determine if pattern is present.	Collect objective data to support hypothesis.	Set up a display of natural, patterned objects. Group them and explain.
4.2 Generate questions whose answers will narrow a field of study. Ask questions and draw reasonable conclusions.	*Science* Patterns are repeated and reused in nature.	Provide analogous examples of patterns. Hypothesize about the reasons for patterns.	Collect data Use dictionary, card catalog and reference materials.	Illustrate a natural pattern that is similar to a given pattern and identify its source in nature.
5.5 Plan and make oral and visual presentations. Use detail to develop topic.	*Science* Nature's patterns can be purposeful. Camoflage is a pattern.	Justify the particular type of camoflage used by a given animal and support with details.	Draw logical conclusions from information presented in a written or oral format.	Report orally on an animal which employs camoflage and provide visuals.
1.4—Use number/numeric figures, letters, words, symbols and visuals to count, compute and communicate quantitative data.	*Math-Reading* Symbols can be used to represent a pattern.	Translate a figural pattern into a symbolic one.	Use a table of numbers to solve word problems.	Create a written letter/number sequence to represent a figural pattern.

TABLE 8.3: GRADE 2 THEME: PATTERNS (Continued)

Essential Learning Skills	Concept/Context	Process: Higher-Level Thinking Skills (Enrichment)	Process: Research Skills	Products
1.5(a)(b) Identify similar and different attributes of geometric figures. Sketch squares, rectangles, triangles and circles.	*Math* Repetition defines symbolic patterns.	Generate a symbol system to represent a given pattern. Complete a sequence in an unfinished pattern.	Research codes used historically. Locate information in encyclopedias.	Add on appropriately to a given pattern.
1.7—Estimate and measure quantities.	*Math* Time is measured by sequential or spatial patterns.	Establish guidelines for telling time on various instruments. Explain how each instrument works/is made.	Locate information through use of almanacs, encyclopedias, textbooks, card catalog and other non-fiction sources.	Set up a mini-chronology museum.
2.2—Use instructional materials as basis for gaining knowledge and improving comprehension. Use oral communication to give and receive information.	*Math* Natural occurrences which reoccur according to a pattern help us temporally order our lives.	Differentiate between a solar calendar and a lunar one. Evaluate the purposiveness of our use of the solar calendar	Locate information by use of card catalog, reference materials and calendars.	Debate the merits of solar and lunar calendars.
1.6(b) Collect and record data from picture graphs, pie and bar graphs, tables and charts and make predictions about them.	*Health* There are patterns in our daily lives.	Determine which patterns in your life are essential. Evaluate the importance of non-essential ones.	Keep a daily log of activities and the time consumed at each.	Evaluate habits as patterns. Simulate loss of familiar patterns through "Backwards Day."
5– Generate, organize, express and evaluate ideas.	*Language Arts-Reading* The illustration of a story or poem may affect our understanding and enjoyment.	Compare and discuss impressions of the same story as portrayed by different illustrations.	Use card catalog.	Present "favorite illustrators" providing visuals.
4—Evaluate content and use of written, oral, aural and visual communications.	*Language Arts-Reading* The text itself may be printed in a way to portray a visual pattern.	Analyze the patterns in diamantes and other free-shape poems.	Use table of contents to locate specific poetry in an anthology.	Choose from several "word play" options such as writing a diamante, finding and writing a list of palindromes, etc.
3.1—Comprehend the implied meanings of written, oral and visual communication.	*Language Arts-Reading* Idioms use metaphor to give additional meaning to a statement.	Explicate the implied meaning contained in an idiom.	Use a variety of sources to locate idioms. List information.	Illustrate an idiom. *Create an idiom comic book.

TABLE 8.3: GRADE 2 THEME: PATTERNS (Continued)

Essential Learning Skills	Concept/Context	Process: Higher-Level Thinking Skills (Enrichment)	Process: Research Skills	Products
2.2—Use instructional materials as basis for gaining knowledge. 6.1—Recognize and construct inferences concerning relationships among things and ideas.	*Art-Social Studies* Many cultures use patterns to convey meaning in artwork.	Investigate and analyze the use of pattern in a sampling of several cultures' folk art.	Use card catalog, encyclopedia, reference books, picture files, telephone books to locate information.	Choose from options such as making a basket, pottery object, etc., or helping to arrange for a speaker or field trip (providing background information).
7.4—Practice appropriate and positive health behaviors to enhance learning.	*Art-Physical Eduation* Dance is often made of a series of patterned moves.	Synthesize your own dance based on a series of familiar (or original) moves.	*(optional) Research different types of dance or dancers through use of card catalog and non-fiction sources.	Participate in a dance movement.
5—Generate, organize, express and evaluate ideas.	*Health-Social Studies* There are patterns for family living that are continued for generations.	Justify the continuance of a family tradition.	Conduct interviews to gain information.	Present a family tradition in a written, visual or oral format. Evaluate its role in student's life.
5.1—Use a variety of techniques to generate writing and speaking topics.	*Health-Social Studies* Physical features are patterns that are often similar among family members.	Trace a dominant family trait as far back in time as possible. Assess any effects this trait may have had or will have.	Read a family tree to obtain names of specific family members.	Create a self-portrait and compare it to a relative in a verbal or figural way.
5.1 (See above)	*Health* Some physical features are unique and, therefore, purposeful for identification.	Consider the possible ramifications of sharing identical characteristics such as fingerprints with someone.	Locate and use textbooks and reference materials. Use a telephone book.	Write a paragraph or more describing a case of mistaken identity. Support with details.
4—Evaluate content and use of written, oral, aural and visual communication.	*Language Arts-Reading* Limericks have both a rhythmic pattern and a rhyme scheme.	Apply limerick pattern to create original limericks.	Use card catalog, table of contents and/or index to locate limerick in poetry anthologies.	Read aloud a limerick (may be original) or musical accompaniment of a limerick.
3.1—Comprehend the implied meanings of written, oral and visual communications.	*Language Arts-Reading* Some stories follow a pattern which aids in our understanding of them.	Use inductive thinking to generalize about what makes a story a tall tale, fable, etc.	Locate various fiction books through use of card catalog. Take notes.	Rewrite the ending to a story and share with a group.

interest-theme (control, putting-it-all-together, aesthetic/expressive, nature/nurture, people/relationships, and symbols and symbol systems) and observe where each child spends his or her free time.

Most children have between two and four dominant themes. Some centers will be conducive to more than one interest-theme, or a child may mix activities that relate to more than one theme. For example, a child with dominant power/ control and aesthetic/expressive themes might use materials from a dressup center provided for the aesthetic/expressive theme to become Batman or Wonder Woman.

The following examples show how learning centers might be set up around an overall theme of Similarities and Differences for a kindergarten class. Each different interest-theme will be represented in the six learning centers. Some of the activities can be done independently and the others under teacher direction; usually one or two activities will be available at any given time.

Control theme: Building volcanoes from differing materials; a superheroes activity engaging children in similarities and differences; a practice makes-perfect activity on the letters b, d, p, and q; a physical education activity that requires children to move from point A to point B playing follow-the-leader (similarities) and then to find as many different ways of getting between those points as possible; a roller derby activity that engages children in similarities and differences in the little vehicles and their speed; books about horses or other strong animals with questions about similarities and differences in breeds; a collection of plastic dinosaurs and dinosaur books, with similarities and differences in sizes, types, geologic periods elicited. Children could help draw a dinosaur to scale in the school yard to get a sense of the size differences.

Nature-Nurture theme: Comparing different types of ants, shells, bird nests, or leaves; similarities and differences in members of the whale family; cat family; a terrarium with various wild plants and books for identifying these; a bean-growing activity comparing growth in many different types of beans; similarities and differences in animal behavior—looking at food preferences of two toads.

Putting-It-All-Together theme: An "unvention" center for taking apart a broken typewriter, clock, radio, or toaster (be sure electric cords have been cut off for safety); Legos, blocks, Lincoln logs or other building toys; an "invention center" to invent things consisting of lots of good "junque" such as styrofoam worms, paper cups, towel rollers, brass fasteners, string, tape, and leftovers from the "unvention center"; maps and globes, with picture books about different cultures and geographical regions; timelines about the history or geology of the earth.

People/Relationships theme: Observing how class members work, looking for similarities and differences; pictures and books about peoples of the world; changing stories to plays; old photographs with questions about then and now; costume corner to try on different roles (could also fit with aesthetic/expressive theme).

Aesthetic/Expressive theme: Comparing the texture of different fabrics through sight and touch; an art center with a variety of materials for collage, painting, or drawing; a listening center with a variety of records or tapes that ask the child to find two pieces of music by the same composer (for example, Prokofiev's Peter and the Wolf and other works); a smell center with jars containing various spices embedded in cotton; a bubble-blowing center (fits also with putting-it-all-together).

Symbols and Symbol Systems theme: Writing the same word in different languages; a variety of code books; secret messages to decode; displays of different number systems; math attribute blocks; geoboards with designs to reproduce; figural activities that require looking for similarities or differences with different rotations; a post office with letter-writing activities.

These are just a few examples. There are endless possibilities in using interest-themes as learning centers. If children are allowed to select those activities engaging to them, motivation for learning is guaranteed, as the child can select problems that help restore equilibrium. Be sure to allow gifted children the time needed to satisfy their quest.

Chapter 9

TEACHING THE WHOLE CHILD

The Oregon mandate requires that schools provide gifted children with special programs and services to assist their cognitive development. But attention also must be paid to helping them develop socially, emotionally, physically, and intuitively.

Sternberg (1981) suggests that giftedness can be understood as *superior function*. What this means is that the young gifted child experiences the same social, emotional, physical, and intuitive needs as his or her peers, but with more intensity.

Piechowski (1979) describes the gifted as exhibiting overexcitability—intense visceral reactions expressed in the psychomotor, sensual, intellectual, imaginatory, and emotional modes. This overexcitability combines with special talents and abilities to yield "developmental potential," the level of development a person can attain under optimum conditions. It is essential, therefore, that teachers working with young, gifted children recognize and support their multidimensional needs to optimize their developmental potential.

AREAS OF POTENTIAL MALADJUSTMENT

Roedell (1984) indentifies eight areas that can ultimately lead to maladjustment and unhappiness:

1. *Uneven development*: Example: A highly verbal child may lack the small motor skills necessary to write well and hence is frustrated by an inability to express ideas in written form.
2. *Perfectionism*: Example: A child may fly into a rage when his/her craft project is less than perfect by that child's standards.
3. *Adult sensitivity*: Example: A creatively gifted child is disappointed and defiant when asked to complete a project that he or she considers mundane.
4. *Intense sensitivity*: Example: Constructive criticism may be interpreted too widely, resulting in lowered self-concept.
5. *Self-definition*: Example: The child may seek to define himself or herself through products; thus, when a product is less than perfect, it reflects on self.
6. *Alienation*: Example: A young, gifted child is alienated from his peers when his intense desire to work on an area of interest is perceived by peers as a lack of interest in them.
7. *Inappropriate environments*: Example: An independent, creative child will experience frustration and may behave inappropriately when the setting is too highly structured or teacher-directed.
8. *Role conflicts*: Example: Girls may be frustrated by teachers and peers who do not support their interest in scientific things.

Teachers must be aware of and work to minimize these potential pitfalls. Using Maslow's heirarchy of human needs, Clark (1988) developed suggestions for the school:

1. Ensure the basic physical needs of food, clothing and shelter are met. Beyond this, information about an individual's learning styles, including their preference for light or darkness, quiet or noise, are helpful.
2. Ensure each child's need for safety is met. Consider emotional safety in reviewing reward and punishment systems as well as competitive incentives.
3. Ensure the child's need for love and belonging is met. Involve students in planning activities and making decisions. Provide opportunities for gifted students to work with other gifted youngsters. Such gifted children may perceive themselves as "different" compared to average peers. They may suffer a feeling of not belonging or being wierd. To counteract this, occasionally group students on the basis of a shared interest.
4. Ensure the development of self-esteem. Recognize the gifted child's efforts.
5. Ensure the development of self-actualization. Actively support the child in investigating areas of interest. Provide opportunities for the child to self-select learning activities.

6. Encourage an environment where transcendence can occur. To encourage transcendence, the teacher must establish a sense of unity within the classroom. The Classroom Meeting Model or Magic Circle are ways to achieve open communication and a sense of sharing among class members. (Clark 1988)

DEALING WITH THE GAPS

Perhaps the most difficult aspect of working with young gifted children is the gaps in development between what they can conceptualize and what they can accomplish physically or handle emotionally. Typically, as the child gets older, this becomes less of a problem, but the very young gifted child often experiences much frustration.

Liz, age 6, is trying to draw a horse with head facing front. After repeated attempts and multiple erasures she rubs a hole in the paper, crumples it, and throws it on the floor. Eric, age 5, knows a great deal about dinosaurs, their classifications, names, and habits. He wants to write the name "Tyrannosaurus Rex" on his drawing but his pencil won't copy the letters his teacher wrote on a card for him. After several attempts, he stabs at and scribbles over his whole paper, wailing in his frustration. The teacher needs to acknowledge this frustration. Rather than saying to Eric, "You wrote it pretty well," or " Don't get angry—now see what you've done to your nice drawing," it would be better to say, "It must be very frustrating to know just what you want to write but not be able to make your pencil do it yet. In another year or so, your body will catch up to your ideas and you'll be able to write letters more easily. Meanwhile, would you like me to write the word on your paper for you? Or would you like to type it on yourself?"

One sad and very bright little kindergartner was describing how bad he felt about not being able to make good teepees (triangles), tomtoms (rectangles) and suns (circles) on the border of his Thanksgiving placemat. Telling him that his teacher, too, experienced that sense of failure and frustration as a little child but now can do it easily helped him feel better about himself. Because of the super sensitivity and awareness of the young, gifted child, frustration about one's inability to accomplish a goal can lead to loss of self-esteem.

Giving a child shape or letter templates to trace, having an older peer sometimes do the writing, and encouraging use of typewriter or computer are a few ways of helping overcome the gap between the child's cognitive goal and his or her fine motor skills. Providing lots of games and activities in which to build these skills, such as legos, pick-up-sticks, bead-stringing, cutting, and drawing also help. Most important is to acknowledge the frustration by helping the child recognize the gap between goal and ability.

Recognizing that the child's emotional development is probably typical for the age, rather than expecting him or her to be more mature because of a high cognitive level, also helps. Most important is not to deny the frustration by telling the child the product is fine or by punishing him or her for feeling frustrated.

CLARK'S INTEGRATED EDUCATION MODEL: AFFECT/ FEELING, COGNITIVE, INTUITIVE, PHYSICAL/SENSING

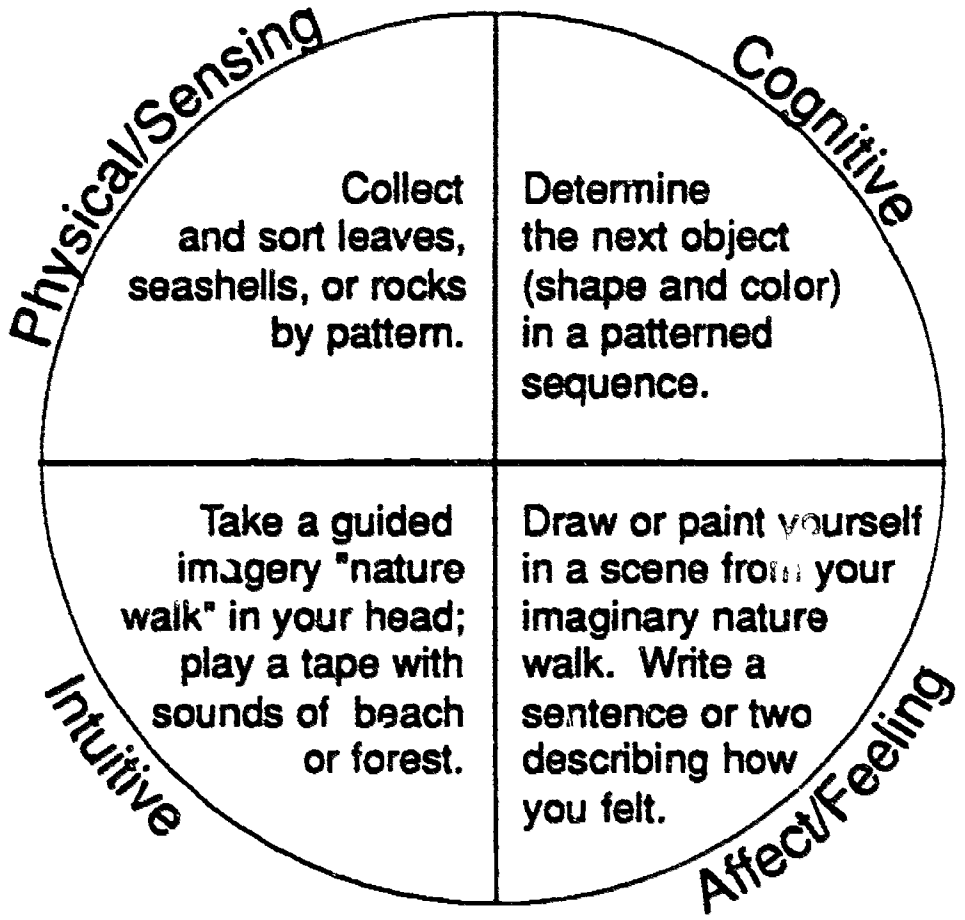
Clark (1986a) developed the Integrated Education Model to facilitate instruction for the whole child (see Appendix G). She cites brain studies to support the validity of integrating curriculum to reach all the domains. Accessing a child's feelings about a topic, exploring his or her intuitions about it, conjuring up memories of past experiences relative to the topic at hand, and providing direct contact with the subject all support and enhance the learning we typically restrict to the cognitive domain.

Clark's Integrative Model employs a quadrant system, displayed in figure 9.1, to plan activities that incorporate each of the brain's functions. Use of this model helps to ensure that objectives for each domain are included.

Supporting, nurturing, and activating the whole child will encourage healthy development as well as increase learning potential.

To develop our potential intellectual abilities, we must understand and nurture our cognitive, social-emotional, physical, and intuitive selves. A limit to any one function limits all functioning. To approach maximum intellectual capacity, one's cognitive, social-emotional, physical, and intuitive development must be highly operable and well integrated (Clark 1988).

FIGURE 9.1: QUADRANTS OF CLARK'S INTEGRATED EDUCATION MODEL



Source: Barbara Clark (1988)

LEARNING STYLES

Attention to the unique learning modalities and styles of each child benefits not only the gifted learners, but maximizes the learning potential of all children in a classroom. It is important to recognize each child's dominant learning modality: visual, auditory, or kinesthetic. If he or she is a visual learner, teaching reading through sight words and practice with looking at and writing letters is appropriate. For an auditory child, a phonetic approach may be more useful.

Kinesthetic learners do not "see" words in their minds; rather they see pictures. If they can associate a word with a picture (for example, a cat), they can learn it. But words like "was," "saw," "the," "on," "but," or "hope" don't have pictures that can be associated with them. For this type of learner, writing the word "the" on the child's finger and having him point to *the* book, *the* chair, and so forth may help him remember it. Other examples are creating words and letters from clay, using the body to be a letter, and walking letters or number shapes.

When bright children are kinesthetic learners and haven't learned to center themselves so the words can stop moving on a page, they show signs of being learning-disabled. Morgan (1989) calls these children "differently-abled," rather than disabled, as they have incredible visualization abilities. Often because they are so bright, these children develop compensation strategies; consequently, teachers do not realize their problems. But the resulting feelings of inadequacy—knowing that "there's something wrong with me that I can't get it"—lead these children to underachieve. The Phoenix School of Roseburg, Oregon, was founded in 1981 to help such

children and other bright underachievers as well.

When planning lessons, learning centers, and out-of-school experiences, strive for ways to include multisensory investigations such as cooking, art work constructed of found objects, and so forth. Consider dramatization and visualization as ways to introduce movement and intuition into everyday activities. Also, observe or ask about the child's preferences for large or small groups or one-on-one activities, for light or darkness, for colors, for quiet or noise in the learning situation. Help the child select settings and activities most appropriate to support his or her learning.

HETERONOMY, AUTONOMY, AND THE COLLECTIVE

For optimum development of gifted (and all) individuals, a strong sense of self and a bonding to the world of others through loving ties must be nurtured.

Autonomy vs. Heteronomy

According to Kamii and DeVries (1978), the first goal of social-emotional development is autonomy. Kamii and DeVries follow Piaget's constructivist perspective that knowledge and morality evolve through a process of construction from within the child. To understand this perspective, it is first necessary to understand the difference between autonomy and heteronomy. Kamii and DeVries state that difference as follows:

> Heteronomy is defined as being governed by others, whereas autonomy means being governed by oneself. The morality of heteronomy is characterized by obedience and conformity to external rules and/or the wishes of others. The morality of autonomy, on the other hand, is characterized by personal conviction about values and rules that are constructed by oneself. For example, the heteronomous pupil obeys the teacher out of fear of punishment or desire to be rewarded in some way. When the more autonomous pupil complies, it is not out of mere obedience, but out of a willingness to cooperate with a request he sees as reasonable and sensible. When he does not see any reason to comply, the more autonomous pupil resists and asks, "Why do I have to do that?" (1978)

Examples of promoting heteronomy include expecting one "right" answer, not supplying reasons for certain rules, and not allowing the child to question adult authority. For the moral development of children, it is crucial that autonomy be encouraged and nurtured.

Too often, gifted children seem to lose their interest in learning at or around the third grade. One possible reason for this is that too many constraints and adult influences have been placed on the child. Rather than learning for the sake of answering some internal questions, children begin to try and find the "right" answers. The potential for new, exciting discoveries is lost.

To further illustrate this point, it might be suggested that most adults remain basically heteronomous throughout their lives (Kamii and DeVries 1978). As adult learners we often ask the professor how many pages a paper should be, what is expected, or what we will be learning. It is imperative to break away from this notion of heteronomy and become more autonomous. Otherwise, our children will be less able to construct their own morals and knowledge. "Autonomy is the first and foremost objective because, as Piaget says, there can be no moral autonomy without intellectual autonomy, and vice versa" (Kamii and DeVries 1978).

The Collective

Another interpretation of social-emotional development also needs consideration. This perspective is based on cultural contexts that do not necessarily value autonomy, but rather focus on commitment to the community.

Going beyond control by others (heteronomy) and control of self (autonomy) to consider the *collective*—the group within which one functions and shares; the needs and interests of the whole—is the dominant value in some cultures, for example, Israel, and China. This is not the same as being controlled by others, because the focus is on sharing, helping, caring for the good of the whole, the public good, and civic responsibility (see Bellah 1985, Eisenberg-Berg 1982).

Our culture may need to consider whether autonomy or the collective should be the focus in schools in light of our need to work together to solve problems of nuclear waste, pollution, the greenhouse effect, and other plagues to our fragile planet. The recent emphasis on cooperative learning may be a positive step in this direction.

Chapter 10

PARENTING YOUNG GIFTED CHILDREN

Because parenting young gifted children has special considerations of its own, an entire chapter has been devoted to that subject. This chapter offers parents ideas about being responsive parents and acting as an advocate in the schools. Some resources that parents may wish to use are also listed.

BEING RESPONSIVE

Responsive parenting is crucial in the education and development of all children. Parents of gifted children may find themselves confused and uncertain with so many differing techniques and ideas about educating gifted children. This section is designed to offer parents of gifted children some encouragement and ideas about responding appropriately to their gifted children's needs (Clark 1983; Smutny, Veenker, and Veenker 1989).

Supporting Interest Development

To be responsive to the gifted child, the parent will need to consider the child's own interests and strengths. Begin by observing your child's interests. Jot down notes and see if any patterns emerge in terms of a possible interest theme.

Cohen (1988b) has identified six major themes through her observations of young gifted children: (1) control, (2) nature-nurture, (3) putting it all together, (4) people-relationships, (5) aesthetic-expressive, and (6) symbols and symbol systems. The themes are explained in detail in chapter 7.

If Suzy is fascinated by anything and everything to do with worms, she may be demonstrating a nature-nurture theme. A parent might respond by providing books, going outside to investigate worms and their habitat, painting with worms using non-toxic paint (this allows the child to observe how worms move), and discussing how important worms are to the soil—in short, encouraging the interest. If the child continues to show interest and wants to delve more deeply into the world of worms, then try to expand on it by looking at other small creatures that live in the soil or finding books about different types of worms.

If a child's interest fades, it is time to move on to a new interest and activity. Always allow your child to lead you. If Matthew is not interested in learning letter sounds do not press him. He will come to you when he is ready and wants to learn about them.

One of the least appropriate ways to respond to a child's interest is to go completely overboard on any one interest. Pushing may result in decreasing the child's fascination with learning, leading to problems later. It is all too easy to respond to a newly piqued interest in music by signing Jody up for violin lessons, piano lessons, and singing lessons. This excessive response may result in a dislike for music as well as discouraging her from sharing her interests with you in the future. Even more harmful is Jody's potential loss of autonomy, as you, not she, are controlling the direction of her learning.

It is important to encourage new possible interests in order to stretch and extend horizons. However, some gifted children may have very strong preferences, and these should be respected.

Another problem lies in overchanneling the child. A child involved in a half a day of school, swimming, tennis, piano, ballet, and gymnastics is probably exhausted and may feel pressure about attaining parental approval. Think about how your child has to adjust to each different environment he or she enters. He must know how to behave in school, at swimming lessons, in child care, at tennis, at ballet class, at piano lessons, at gymanstics class, and at home (Bronfenbrenner 1979). Each environment requires a different response from the child. A much less stressful life for the child might include some activities in which the child is especially interested and positive, interactive time with you and your family (Elkind 1981).

Other Ways of Being Responsive

In being responsive to your child's needs, it is also necessary to be aware of possible emotional

needs. If Karen is having nightmares about fires in your home, you might respond by talking to Karen about fires and visiting a fire station. Perhaps the entire family could develop a fire escape plan. Acknowledge the fear and try to alleviate it so that your child will feel safe and secure.

Sometimes a fear is being masked. Paul may know intellectually that there is no such thing as monsters. Imaginations, however, are very powerful and may cause Paul to be afraid that there might be a monster under his bed. A discrepancy occurs between what the child knows and what the child feels. Because Paul knows there is no such thing as monsters, he may mask the fear in order to avoid ridicule. Parents need to be aware of these masked fears and respond to them. Letting him take a magic bunny to bed or suggesting that he place a plastic sword in easy reach in case the monsters come in his dreams can help the child feel safe.

Often gifted children place too much pressure on themselves and set unrealistic goals. Tracy may have a picture in her mind that she wants to draw. As she attempts to draw it, she begins to get frustrated that her hand will not do what her mind wants. Unfortunately, Tracy's developmental level in fine motor skills did not allow her to draw as well as she would have liked. The following is a valid summary statement about gifted young children:

> The child's intellectual abilities are growing nearly twice as fast as is usual, and it is too much to expect physical and emotional processes to keep pace with such rapid development.... Furthermore, the greatest deviation occurs at a time when he is least able to understand and handle it, that is, during the early school years. (Kirk 1972, cited in Karnes 1983)

The Environment

The National Association for the Education of Young Children (NAEYC) believes that an environment that is developmentally appropriate should be safe and nurturing and able to promote "the physical, social, emotional and cognitive development of young children" (1988). The NAEYC defines *developmental appropriateness* according to two dimensions, that of age and of the individual.

Age appropriateness deals with "predictable changes that occur in all domains of development—physical, emotional, social, and cognitive—during the first 9 years of life." Individual appropriateness relates to each child's unique experiences, including "an individual pattern and timing of growth, as well as individual personality, learning style, and family background." A knowledge of child development can be "used in conjunction with understanding about individual children's growth patterns, strengths, interests, and experiences to design the most appropriate learning environment."

In the home, a responsive environment includes books; manipulative toys; space for experiments; construction materials such as paper, crayons, paint, markers, scissors, and tape; space for water play; a sand box; lots of "stuff" for inventions; safe tools; kitchen utensils; and anything else you can think of that will compel your child to explore the environment. Such materials do not have to be costly (Roedell 1985).

When planning activities, keep the child's interests in mind. Children's interests are closely related to their needs in terms of answering questions about the world they live in. Encourage your child to engage in conversations, ask open-ended questions, and present activities as problems about which he or she may have some ideas and solutions. The most important part of a child's learning environment is your time and involvement. By showing interest and providing activities for your child, he or she will begin to gain confidence and a positive self-concept leading to future success and excitement about learning (Roedell 1985).

Toys

When considering what toys to buy for your child, look for toys that can be used in a variety of ways such as Lincoln Logs, wooden blocks, or Legos (Forman and Hill 1984). Scraps of fabric, paper, cardboard boxes, and found objects also encourage imaginative play. These kinds of toys encourage children to play creatively and allow for all sorts of new ideas. They are more open-ended than toys that have one specific purpose.

Other important toys for your child are toys that encourage gross-motor skills such as climbers, space for tumbling, and bicycles. Body awareness is vital to a young child's development. Activities such as the Hokey Pokey, Head and Shoulders, Knees and Toes, and other movement activities are not only fun but also help the child learn how different body parts function (Abroms 1983).

Finally, your child's toy collection should include good books and cuddly toys. Reading to your child is an essential part of your child's literacy environment and is critical in promoting a love of reading

reading later on. Cuddly toys such as teddy bears allow your child to learn about nurturance and offer something special to cuddle up with when it is needed. If you know your child's interest-themes, you will be more likely to select toys that will be of long-term interest.

Play as Work

Children learn through their play. They tend to become involved in play that allows them to explore their world, answering internal questions for themselves. Smutny, Veenker, and Veenker (1989) discuss the danger of not allowing play for the sake of play. If all play is geared toward educational ends, play may lose some of its magical quality as well as take away the excitement a child experiences when he or she has made a new discovery.

Wendy, who is playing an orphan in an elaborate pretend play with several other children, is intrigued by the idea of life as an orphan. It is much more empowering for her to explore the role than for an adult to explain what it might be like to grow up as an orphan. Wendy creates knowledge for herself through her own ideas as well as through the actions and responses of the other children involved. As Forman and Hill (1984) noted:

> We invite parents, as well as teachers, to see the value of play, at least a certain type we call constructive play, in fostering the young child's ability to solve problems in both the material world of science, math, art, and craft as well as the social world of language, social understanding, and justice. We believe the Piagetian perspective will foster competence, curiosity, and creativity through its respect for how the particular child, through play, constructs meaning for the events encountered. The thoughtful parent can do more than anyone to help the child develop at a natural pace from infancy to childhood if only we learn to emphasize what the child is, rather than what we want the child to be.

Peer Interaction/Socialization

Gifted children often sense that they are "different" from other children as early as preschool. It is imperative that gifted children spend time with other gifted children. If this sense of differentness develops into something negative it can be both socially and academically devastating to the child. Peers in a classroom may make fun of any child who is different from themselves or who gets special services in another classroom.

Gifted children may feel isolated and confused. The chance to interact with other gifted children will let the child know that he or she is not alone and that there are other children like him. It may be helpful for a parent to set up a support group with other parents. When the parent group meets, the children can play and interact together. Both groups can benefit from such an experience (Karnes and Johnson 1986).

PARENTS IN THE SCHOOL SYSTEM

Parents have the right to expect that schools will do their best to meet the learning needs of all children. These rights are set forth below from an article by Gina Ginsburg-Riggs, "Parents of Gifted and Talented Children: Unite!," *G/C/T Magazine*, January-February 1982.

A Bill of Rights for Parents of Gifted Children

1. Parents have the right to a free public education for their gifted children.
2. The right to an education that enables them to learn all they are able to learn.
3. The right to educators' awareness that gifted children learn earlier, better, faster and often differently from most other children.
4. The right to be accepted and respected as parents of children with legitimate and special learning needs.
5. The right to be involved in the planning for the education of their gifted children.
6. The right to information in the child's file, and the right to explanation if that information is in unfamiliar terms.
7. The right to freedom of expression as they voice the joys and problems of raising gifted children.
8. The right to become change agents in the legislature and schools when gifted children are not adequately served.
9. The right to an environment of acceptance and pride in what gifted children can accomplish for themselves, first, but also for the quality of their lives.

Parents as Advocates for Their Children

Parenting is not an easy job; it may be even more challenging for parents of gifted children. One of those challenges is acting as an advocate for your

child in the school system. Clark (1988) recommends that you consider your child's characteristics and needs and understand that your role as a parent may be somewhat unusual.

Join other parents of gifted children and share ideas and concerns. OATAG, the Oregon Association for Talented and Gifted, is a nonprofit organization that has parent affiliate groups and can help you set up a group at your school or district. It also has two conferences each year for parents and educators, as well as a parent retreat, quarterly journal, and other useful materials. The address and telephone for OATAG is P.O. Box 1703, Beaverton, OR 97075. (503) 629-0163.

If the school is not meeting your child's needs, you need to do something about it. When approaching a teacher or school administrator, remember that the school is trying to meet the needs of all its students, and your input is valuable, not bothersome. Try to take a positive attitude, but be firm and assertive (Clark 1988).

Interaction with Teachers

You know your child best. Do not be afraid to talk to your child's teacher. Teachers are people, too, and may be unsure of how to best support your child's giftedness. Communication is essential. The new mandate will make it necessary for teachers throughout the state to learn more about gifted children. Parents already know much about their children's giftedness and may be in a position to share their knowledge and resources with teachers.

Extending School to Home and Home to School

Once a relationship has been built between you and your child's teacher, communication should continue. If you and the teacher discuss what your child is interested in and what activities he or she is most involved in, extending these interests at home or in school will be of value to the child. Miss Johnson may notice that Andrew was very involved in a center activity that dealt with the similarities and differences of powdered substances. At home you may be able to extend this activity by supplying powdered substances and adding colored water to further the exploration.

By the same token, a parent can share with the child's teacher that Elizabeth was asking all sorts of questions about earthquakes. The teacher might then be able to offer discussion and activities dealing with earthquakes. Sharing ideas and insights with your child's teacher will enhance your child's experience at home and at school as well as promote a feeling of continuity between the two places.

Parents as Resources

Parents are the first ring of resources in the classroom. Sharing skills and abilities, serving as mentors, aiding in the classroom, assisting with trip planning/taking, and finding resources are several ways of being resources for your child's class. If you have had interesting or unusual experiences, or you have expertise in a particular area, you can share these. Schools can collect data from parents each year to keep on file for such activities.

A Booklist for Parents on Young or Gifted Children

Alvino, James (1985). *Parents' Guide to Raising a Gifted Child: Recognizing and Developing Your Child's Potential.* New York: Ballantine Books (Ballantine Mail Sails, Dept. TA, 201 E. 50th St., New York, NY 11022).

Amabile, Theresa (1989). *Growing Up Creative: Nurturing a Lifetime of Creativity.* New York: Crown Publishers.

Clark, Barbara (1988). *Growing Up Gifted.* Columbus, Ohio: Charles E. Merrill Publishing Company.

Forman, George E., and Hill, Fleet (1984). *Constructive Play: Applying Piaget in the Preschool.* Menlo Park, California: Addison-Wesley Publishing Company.

Forman, George, and Kuschner, David (1977). *The Child's Construction of Knowledge: Piaget for Teaching Children.* Belmont, California: Wadsworth.

Perino, Sheila C., and Perino, Joseph (1981). *Parenting the Gifted: Developing the Promise.* New York: R. R. Bowker (1180 Avenue of the Americas, New York, NY 10036).

Saunders, Jacqulyn, and Espeland, Pamela (1986). *Bring Out the Best: A Resource Guide for Parents of Young Gifted Children.* Minneapolis, Minnesota: Free Spirit Publishing (123 N. Third St., Suite 716, Minneapolis, MN 55401. [612] 338-2068).

Smutny, Joan; Veenker, Kathleen; and Veenker, Stephen (1989). *Your Gifted Child: How to Recognize and Develop the Special Talents in Your Child from Birth to Age Seven.* New York: Facts on File.

Journals

Gifted Child Today
P.O. Box 637
Holmes, PA 19043 ($24 for 6 issues/year)

Gifted Children Monthly
Gifted Children Monthly
P.O. Box 48a1
MT Morris, IL 61054 ($25 for 9 issues/year)

APPENDIX A
OREGON MANDATE FOR EDUCATION OF THE GIFTED AND TALENTED

Senate Bill 504 (passed June 1987) mandated that gifted children in the state of Oregon be identified through a child-find in the 1990-91 school year. Special programs and services must be provided by September 1991.

DEFINITIONS

The regulations (343.395)(7) define the *gifted* as "those children who require special educational programs or services, or both, beyond those normally provided by the regular school program." According to Oregon Administrative Rules (OARs) 581-22-403 (March 9, 1989), "Each school district shall have a program which identifies and serves talented and gifted students in the areas of intellectual ability and academic performance in grades K through 12..." The following gifted children *must* be served:

1. **Intellectually Gifted:** Those children performing "at or above the 97th percentile on nationally standardized mental abilities tests, as determined by local district policy and procedures"

and/or

2. **Academically Talented:** Those children performing "at or above the 97th percentile on nationally standardized tests of academic ability or aptitude as determined by local district policy and procedures" (please note: this means in any specific academic area such as math, science, or reading, not a total score) (OAR 581-22-403 (1)(a)(b).

School districts are liable under the law if they do not serve the above identified groups by the 1991-1992 school year. However, the OARs allow for delays in implementation of the programs (not in the identification process) for districts who petition the state superintendent of schools for an extension because of financial hardship (581-22-403(5).

In addition, the OARs (581-22-403(3) state that "districts *may* serve additional students in the programs and services provided to comply with this rule. These students may include more who are talented and gifted, as defined in regulations 343.397(7)(c)(d)(e)." These are students who "demonstrate outstanding ability or potential in one or more of the following areas:"

1. **Creative or Productive Ability** "in using original or nontraditional methods in thinking and producing."

and/or

2. **Visual or Performing Arts,** "such as dance, music, or art" as determined by professional judgment of student products or performances;

and/or

3. **Talent in Leadership,** "ability in motivating the performance of others either in educational or noneducational settings," as determined by professional judgment based on student's demonstrated abilities, and may include peer judgment.

The regulations allow districts to serve "other students who show *potential* to perform at the eligibility criteria and where the students will benefit from the programs or services" (581-22-403(3). Criteria for other such students must be carefully established by a district. Districts should seek such students particularly from the following groups:

1. Cultural and ethnic minorities
2. Disadvantaged
3. Underachieving gifted

4. Handicapped learner

CRITERIA FOR IDENTIFICATION

The OARs require that "A combination of at least a or b and c of the following criteria for identifying intellectually gifted or academically talented students shall be used."

a. **Intellectually Gifted:** Performance at or above the 97th percentile on nationally standardized mental ability tests

or

b. **Academically Talented:** Performance at or above the 97th percentile on nationally standardized tests of academic ability or aptitude

and

c. **"Behavioral or learning characteristics information** shall be collected and used for the purpose of identifying talented and gifted students"(581-22-403(1)(a)(b)(c).

REQUIREMENT: WRITTEN PLAN

The OARs require that districts develop "a written district plan. All required written course statements shall identify the instructional programs or services needed to address the assessed instructional levels and accelerated rates of learning of identified [gifted] students" (581-22-403(2). District policies should be specified in this plan that reflect the philosophy and commitment to services and programs of the district. Wilhelmi and Schwartzrock (1989) state that it should include:

- **Philosophy**—purpose of program and educational approaches to be used
- **Goals and Timelines** for overall program
- **System of Identification**—essential components in identification process; categories of students to be identified; identification of nontypical populations; maintenance of student records (See *Student Records, 1989*, Oregon Department of Education).

1. Use a systematic, comprehensive procedure in which no single test, score, or measure shall be the determining factor.
2. Select tests and measures that relate to the type of student being identified and the instructional program or service being planned.
3. Assess each identified student for instructional levels and rates of learning as a basis for provision of programs or services.
4. Special efforts are made to identify students among ethnic minorities, handicapped, culturally different, and economically disadvantaged populations.

The regulations require that: (1) the total school population be reviewed through a screening and referral process, (2) that a team be responsible for further student evaluation and selection, (3) that a student record be maintained for each student evaluated, and (4) that students be placed in programs/services based on the written plan.

There must be a good fit between how giftedness is defined and the type of program provided (see figure A1). For example, if giftedness is defined as high academic or intellectual ability, creativity or learning styles tests do not match the definition, although they may provide useful information for assessment and programming purposes. Likewise, if a program is developed around reading, utilizing high mathematics scores is pointless (see chapter 3, Identification).

- **Parent Rights**—regarding testing; notification of identification; and involvement in selection of programs and services
- **Programs and Services**—Options for identified students described in The Written Course Statement:

  All required written course statements identify the academic instructional programs and serv-

FIGURE A1: THE FIT AMONG IDENTIFICATION, DEFINITION, AND PROGRAM

ices which shall be provided, along with planned course goals (see OAR 581-22-211). Planned course statements should address how the curriculum is to be modified or supplemented to meet the assessed levels and accelerated rates of learning of gifted pupils. A description by grade level and/or subject area of these adaptations should be provided. The district superintendent should remove any administrative barriers that may restrict students' access to appropriate options and services. In chapters 4, 5, and 6, assessment and modifications were suggested.

- **Curriculum Options**—Curriculum offerings for identified students
- **Staffing**—Criteria for staff selection
- **Due Process**—Appeals and Complaints Procedures; procedures for exiting program once student is identified. Rights of Parents include (Oregon Administrative Rule 581-15-840):
  1. School districts shall notify parent(s) of a pupil in writing of all decisions with regard to the selection and/or placement of their child in the approved program, prior to implementing the program.
  2. Such parent(s) shall have the right, upon request, to examine all records and data pertaining to such selection or placement.
  3. No child shall be placed in an approved program unless the child's parent(s) agree in writing.
  4. Complaint Procedures include (Oregon Administrative Rule 581-22-805):

     If parents are dissatisfied with a decision by the school district concerning appropriateness of programs and services provided for identified talented and gifted students, they should first attempt to resolve any conflict *informally* through talking with the teacher, counselor, and/or principal. If an agreement cannot be reached, they may initiate a *formal procedure*:

     a. Report complaint to the district superintendent.
     b. Complete "Talented and Gifted Standards Complaint" form for further consideration.
     c. The superintendent shall arrange for a review committee consisting of the [talented and gifted coordinator/teacher, TAG programs supervisor, counselor, and school psychologist]
     d. Review committee shall meet within [2] days of receiving written complaint to review all pertinent information. A recommendation will be submitted to the superintendent within [10] working days of receiving original complaint.
     e. Committee may recommend that:
        a. Programs or services are appropriate
        b. Programs or services are not appropriate
     f. Superintendent shall report immediately the recommendations of review committee to school board
     g. The decision of the board shall be final.
     h. "If the complainant remains dissatisfied and has exhausted local procedures, or 45 or more days have elapsed since the original filing of a written complaint alleging violation of standards with the school district, an appeal to the state superintendent of public instruction can be filed. The school district shall provide a copy of the appropriate Oregon Administrative Rule upon request" (Wilhelmi and Schwartzrock 1989).
- **Evaluation**—Periodic evaluations with input from staff, community, students, parents.

APPENDIX B
OBSERVATIONS OF GIFTED YOUNG CHILDREN

by Kathleen Callicrate

COMMUNICATION SKILLS

1. Speak early
   a. Usually can say many words by one year
   b. Can compose complex sentences before age two
2. Advanced vocabulary
   Use words like "reflection," "splendid," "invisible," "vehicle," in spontaneous conversation
3. Humor
   a. Understand riddles, puns, and enjoy manipulating words
   b. May invent new words like "mooness," meaning moonlight shining on the ground; or "frog-etts," meaning baby frogs.
4. Like to argue!
   Can be quite logical, but also delight in "undoing" adults and others in authority

THINKING

1. Amazing memory
   a. Places they have been
   b. People they have met
   c. Promises
   d. The arrangement of rooms, the order of toys, procedures, or events
2. Retain information easily
   a. May learn from one exposure (for example, can be shown geometric shapes and never forget their names)
   b. Learn in "leaps and bounds" (skips steps in the learning process)
3. Understand complex concepts
   a. May discuss issues relating to death, war, or politics.
   b. Enjoy discussing subjects that are beyond their understanding
   c. Very curious about topics that make adults uncomfortable
   d. Have the ability to take complex concepts and facts and draw valid conclusions. An example could be at the end of a conversation about the root structure of trees, they will make a summary statement like "Trees need water and sunlight."
   e. Fascinated with time, money, globes, maps, locks and keys, etc.
4. Keen power of observation
   a. Sensitive to the environment
   b. Tune into nonverbal evidence. May ask are you sad, angry, happy, etc.
5. Think abstractly
   a. Examples: Who made the world? How do buildings hold together? Why doesn't the ant fall off the side of the table? What can burn?
   b. Easily retain previous information to build on the new.
   c. Can reverse roles. An example could be the statement "If I were the teacher" or "the parent."
6. Notice inconsistencies
   May challenge rules, traditions, social orders, and unspoken laws
7. Many gifted preschoolers read before first grade. They are able to do simple addition and subtraction.
8. Have vivid imaginations
   a. Can tell tall tales in great detail
   b. May have a pretend playmate
9. Enjoy problem solving
   a. Will study an issue from many viewpoints
   b. Will make unique and innovative suggestions

BEHAVIOR

1. Intensely curious
   a. Ask why, when, where, what, and how about everything
   b. Love to take things apart
2. Can concentrate for an extended period on a project of THEIR interest
   a. Have interests that totally absorb them
   b. May have several collections
   c. Insist on books related to one topic
3. May build interesting and intricate designs
   a. Favorite building materials are lego, tinker toys, blocks, or construct sticks
   b. Will create with old boxes, broken toys, garbage, etc.
4. May develop large and small muscle skills at an early age
   a. Walk early
   b. Ride a tricycle
   c. May be able to color, print, draw, and paint with great detail
5. Critical of others and self
   a. Perfectionists
   b. Desire correctness to the smallest detail
6. May demonstrate talents at an early age
   a. Music
   b. Art
   c. The performing arts

Source: Callicrate, 1985.

APPENDIX C

SAMPLE PARENT NOMINATION FORM AT THE EARLY CHILDHOOD LEVEL

Name of Student _____ Age _____

Address _____ School _____ Grade ___

Parent's Name _____

Instructions: In relationship to the typical child in your neighborhood, please circle a number for each item which best describes your child: 5—has this trait to a high degree; 4—has this trait more than the typical child; 3—compares with the typical child; 2—has this trait less than the typical child; 1—lacks this trait.

1.	Has advanced vocabulary, expresses himself or herself well	5	4	3	2	1
2.	Thinks quickly	5	4	3	2	1
3.	Recalls facts easily	5	4	3	2	1
4.	Wants to know how things work	5	4	3	2	1
5.	Is reading (before he/she started kindergarten)	5	4	3	2	1
6.	Puts unrelated ideas together in new and different ways	5	4	3	2	1
7.	Becomes bored easily	5	4	3	2	1
8.	Asks reasons why — questions almost everything	5	4	3	2	1
9.	Likes "grown-up" things and to be with older people	5	4	3	2	1
10.	Has a great deal of curiosity	5	4	3	2	1
11.	Is adventurous	5	4	3	2	1
12.	Has a good sense of humor	5	4	3	2	1
13.	Is impulsive, acts before he/she thinks	5	4	3	2	1
14.	Tends to dominate others if given the chance	5	4	3	2	1
15.	Is persistent, sticks to a task	5	4	3	2	1
16.	Has good physical coordination and body control	5	4	3	2	1
17.	Is independent and self-sufficient in looking after himself/herself	5	4	3	2	1
18.	Is aware of his/her surroundings and what is going on around him/her	5	4	3	2	1
19.	Has a long attention span	5	4	3	2	1
20.	Wanted to do things for himself/herself early — example: dressing and feeding himself/herself	5	4	3	2	1

Developed by the Staff of the Gifted and Talented Section, Division of Exceptional Children, North Carolina Department of Public Instruction. This instrument is part of an identification Model developed by Cornelia Tongue and Channian Sperling, 1978. Reprinted by permission.

Figure 19 From Davis and Rimm, 1985, p. 86.

APPENDIX D

PRESCHOOL PARENT INVENTORY

Child's Name: _____ Date: _____

Address: _____ Birthdate: _____
No. & Street City State Zip

Parents Name(s): _____ Home Phone: _____

Sibling(s) and others living in the home:

_____

Please summarize your child's day care, preschool, and/or public school experiences:

Location Age Hours per week

_____

_____

_____

PART I

Your answers to this set of questions will help us to get a sense of your child's abilities and interests. Try to be as specific as you can. Please feel free to add any information you think might be useful in portraying your child.

1. Describe the kinds of things your child has done which you think might indicate advance intellectual ability.

2. What kinds of building or art work does your child do? Describe his or her favorite materials and the work s/he creates.

3. What topics or ideas does your child find most interesting? Please describe what your child's interests are and how they are expressed. For instance, is your child a car and truck enthusiast who collects them in any form available? Has your child mastered specific information connected with a favorite topic, such as memorizing the names of many species of dinosaur or planets in our solar system? Does your child have a variety of interests or a single, intense enthusiasm?

4. Please describe any imaginary games your child plays. Are other people (real or imaginary companions) likely to join in this play? Does the play involve props such as a toy house and people, dress up clothes, or household objects? Are there particular themes which your child especially enjoys acting out?

5. Does your child show a strong interest in any form of music? For instance, does your child express enthusiasm for particular kinds of music? Does s/he sing on key? Dance? Play a musical instrument?

6. Does your child show a strong interest in body movement activity? Is there a particular physical activity in which s/he excels? (Swimming, gymnastics, dance, etc.)

7. Does your child show a strong interest in how things work? Has s/he taken apart and re-assembled complex toys or household objects, constructed replicas of objects, or expressed curiosity about complex machines? Does your child do so working alone, or with some help?

8. Does your child make up rhymes or stories? Describe any ways in which your child uses language creatively.

9. Does your child like to make up jokes, riddles, or limericks? Describe any ways in which your child expresses a sense of humor.

10. Please describe how your child adapts to the spatial environment. For instance, does your child give you directions on how to drive to a familiar destination? Does your child show an understanding of how to find his or her way around the house, neighborhood, and/or in familiar stores?

11. Please list by name or describe the books your child most enjoys looking at, listening to, or reading.

12. Describe how your child has displayed an interest in ordering or grouping items in some systematic way. For example, a child might create with blocks, Legos, or other construction toys a block building in which each section is composed of blocks of a single size, shape, or color. Another child might arrange crayons to form a rainbow-sequenced array of colors. Is this type of play a favorite or frequent activity for your child?

13. Does your child have special lessons, training, or learning opportunities in addition to those in school settings?

14. What kinds of development do you feel are most important for your child?

15. What suggestions can you give for meeting your child's needs in an educational setting?

PART II

The questions in this section cover a variety of behaviors which children might display during the years from four to six and beyond. Remember that no child will have mastered all, or even many, of these skills. We are interested in your observations about an assortment of behaviors and the levels at which they are displayed. Feel free to comment on the back of these sheets, for how a child does something is often as important as having mastered it.

To each question, respond by checking the category most descriptive of your child's behavior. Marking "1" indicates that your child has not yet demonstrated the skill, marking "3" indicates that you have observed this behavior sometimes, and "5" indicates you have observed this behavior consistently. Mark "2" if you have observed this behavior only occasionally, and "4" if frequently.

	Not Yet		Some-times		Consis-tently
	1	2	3	4	5
1. Does your child recognize and name two-digit numerals?					
2. Is your child able to print letters of the alphabet without copying?					

	Not Yet		Some-times		Consis-tently
	1	2	3	4	5
3. Does your child build intricate or symmetrical structures or designs using blocks, play dough, or other materials?					
4. Does your child ask the meaning of abstract words (for example, "space" or "justice"), and then used them correctly in speech at a later time?					
5. Does your child know his or her parent's name(s)?					
6. Does your child know which of his/her hands is left and which is right?					
7. Can your child skip?					
8. Has your child recited from memory either the complete alphabet or numbers from 1 through 20?					
9. Is your child able to draw a person with at least some representation of legs, arms, body, and head and eyes?					
10. Does your child understand and use the names for the days of the week?					
11. Is your child able to read a simple book, such as HOP ON POP, or other kindergarten level books, and recognize most of the words?					
12. Has your child solved problems that involve the subtraction of small numbers?					
13. Does your child know his/her address?					
14. Does your child tell time by the hands on the clock?					
15. Does your child make up rhymes that communicate?					
16. Does your child recognize and name the letters in the alphabet?					
17. Does your child print several words without copying, or spell several words with the aid of magnetic letters or other letter symbols?					

	Not Yet		Some-times		Consis-tently
	1	2	3	4	5
18. Does your child ever make up songs or stories elaborating on new words of ideas?					
19. Does your child seem to have an extensive vocabulary for his/her age?					
20. Can your child draw or copy a diamond?					
21. Can your child tell you which way to turn in order to arrive at a familiar place when traveling by car?					
22. Does your child know his/her birthdate?					
23. Can your child repeat a sequence of five numbers forward?					
24. Has your child recounted details of past events in such a vivid way that it surprised you?					
25. Can your child tie shoes, ribbons, etc., in a bow					
26. Does your child recognize and understand the value of coins (Penny, nickel, dime, quarter)?					
27. Can your child print his or her name?					
28. Does your child read books, such as WINNIE THE POOH, which contain long stories and few pictures?					
29. Has your child ever commented that two objects are similar because of shape?					
30. Does your child seem to learn things quickly and easily?					
31. Can your child predict possible outcomes for a story or event?					
32. Has your child ever solved problems that involve the addition of small numbers?					
33. Does your child know the names of the seasons (fall or autumn, winter, spring, summer)?					

	Not Yet		Some-times		Consis-tently
	1	2	3	4	5
34. Has your child ever made or used a simple map?					
35. Does your child recognize the numerals from 1 through 9?					
36. Does your child hear likenesses and differences in the beginnings of words?					
37. Does your child ever use the conjunctions "however" or "although" in a sentence?					
38. Does your child write brief notes or letters to relatives or friends?					
39. Does your child put together a picture puzzle of 30 pieces or more in which the pieces are all part of the same picture?					
40. Does your child recognize and name five or more printed words in books?					
41. Is your child able to count a set of objects from a larger group? For example, from a group of 10 blocks, could your child count out a set of three or four?					
42. Can your child name the sounds associated with the letters of the alphabet?					
43. Has your child ever mentioned that s/he was putting something in a certain place so that it would be easier to find later?					
44. Can your child repeat a sequence of three numbers in reverse order?					
45. Does your child "sound out" new words that s/he does not recognize by sight?					
46. Does your child retell or interpret stories in his or her own words?					
47. Does your child know the names of the months of the year?					
48. Can your child complete dot-to-dot pictures?					

	Not Yet		Some-times		Consis-tently
	1	2	3	4	5
49. Is your child able to identify primary and secondary colors (red, yellow, blue, orange, green, purple)?					
50. Does your child recognize numerical patterns, such as phone numbers of street addresses?					
51. If today were Thursday, could your child tell you tomorrow would be Friday, and yesterday was Wednesday?					
52. Can your child find hidden objects or shapes in picture games?					

APPENDIX E

The Renzulli-Hartman Scale for Rating Behavioral Characteristics of Superior Students

Name_____ Date_____

School_____ Grade_____ Age _____ Yrs. Mos.

Teacher or person completing this form_____

How long have you known this child? _____Months.

DIRECTIONS. These scales are designed to obtain teacher estimates of a student's characteristics in the areas of learning, motivation, creativity, and leadership. The items are derived from the research literature dealing with characteristics of gifted and creative persons. It should be pointed out that a considerable amount of individual differences can be found within this population; and therefore, the profiles are likely to vary a great deal. Each item in the scales should be considered separately and should reflect the degree to which you have observed the presence or absence of each characteristic. Since the four dimensions of the instrument represent relatively different sets of behaviors, *the scores obtained from the separate scales should not be summed to yield a total score*. Please read the statements carefully and place an X in the appropriate place according to the following scale of values.

1. If you have *seldom* or *never* observed this characteristic.
2. If you have observed this characteristic *occasionally*.
3. If you have observed this characteristic to a *considerable* degree.
4. If you have observed this characteristic *almost all of the time*.

Space has been provided following each item for your comments.

SCORING. Separate scores for each of the three dimensions may be obtained as follows:

Add the total number of X's in each column to obtain the "Column Total."
Multiply the Column Total by the "Weight" for each column to obtain the "Weighted Column Total."
Sum the Weighted Column Totals across to obtain the "Score" for each dimension of the scale.
Enter the Scores below.

Learning Characteristics ..... _____
Motivational Characteristics ..... _____
Creativity Characteristics ..... _____
Leadership Characteristics ..... _____

PART I: LEARNING CHARACTERISTICS

	1*	2	3	4
1. Has unusually advanced vocabulary for age or grade level; uses terms in a meaningful way; has verbal behavior characterized by "richness" of expression, elaboration, and fluency.				
2. Possesses a large storehouse of information about a variety of topics (beyond the usual interests of youngsters his age).				
3. Has quick mastery and recall of factual information.				
4. Has rapid insight into cause-effect relationships; tries to discover the how and why of things; asks many provocative questions (as distinct from information or factual questions); wants to know what makes things (or people) "tick."				
5. Has a ready grasp of underlying principles and can quickly make valid generalizations about events, people, or things; looks for similarities and differences in events, people, and things.				
6. Is a keen and alert observer; usually "sees more" or "gets more" out of a story, film, etc., than others.				

* 1—Seldom or never
2—Occasionally
3—Considerably
4—Almost always

7. Reads a great deal on his own; usually prefers adult level books; does not avoid difficult material; may show a preference for biography, autobiography, encyclopedias, and atlases.
8. Tries to understand complicated material by separating it into its respective parts; reasons things out for himself; sees logical and common sense answers.

1	2	3	4	Weight
				Weighted Column Total
				TOTAL

Column Total

PART II: MOTIVATIONAL CHARACTERISTICS

1. Becomes absorbed and truly involved in certain topics or problems; is persistent in seeking task completion. (It is sometimes difficult to get him to move on to another topic.)
2. Is easily bored with routine tasks.
3. Needs little external motivation to follow through in work that initially excites him.
4. Strives toward perfection; is self-critical; is not easily satisfied with his own speed or products.
5. Prefers to work independently; requires little direction from teachers.
6. Is interested in many "adult" problems such as religion, politics, sex, race—more than usual for age level.
7. Often is self-assertive (sometimes even aggressive); stubborn in his beliefs.
8. Likes to organize and bring structure to things, people, and situations.
9. Is quite concerned with right and wrong, good and bad; often evaluates and passes judgment on events, people, and things.

1	2	3	4	
				Column Total
1	2	3	4	Weight
				Weighted Column Total
				TOTAL

PART III: CREATIVITY CHARACTERISTICS

	1	2	3	4
1. Displays a great deal of curiosity about many things; is constantly asking questions about anything and everything.				
2. Generates a large number of ideas or solutions to problems and questions; often offers unusual ("way out"), unique, clever responses.				
3. Is uninhibited in expressions of opinion; is sometimes radical and spirited in disagreement; is tenacious.				
4. Is a high risk taker; is adventurous and speculative.				
5. Displays a good deal of intellectual playfulness; fantasizes; imagines ("I wonder what would happen if. . . "); manipulates ideas (i.e., changes, elaborates upon them); is often concerned with adapting, improving, and modifying institutions, objects, and systems.				
6. Displays a keen sense of humor and sees humor in situations that may not appear to be humorous to others.				
7. Is unusually aware of his impulses and more open to the irrational in himself (freer expression of feminine interest for boys, greater than usual amount of independence for girls); shows emotional sensitivity.				
8. Is sensitive to beauty; attends to aesthetic characteristics of things.				
9. Is nonconforming; accepts disorder, is not interested in details; is individualistic; does not fear being different.				
10. Criticizes constructively; is unwilling to accept authoritarian pronouncements without critical examination.				
Column Total				
Weight	1	2	3	4
Weighted Column Total				
TOTAL				

PART IV: LEADERSHIP CHARACTERISTICS

	1	2	3	4
1. Carries responsibility well; can be counted on to do what he has promised and usually does it well.				
2. Is self confident with children his own age as well as adults; seems comfortable when asked to show his work to the class.				
3. Seems to be well liked by his classmates.				
4. Is cooperative with teacher and classmates; tends to avoid bickering and is generally easy to get along with.				
5. Can express himself well; has good verbal facility and is usually well understood.				
6. Adapts readily to new situations; is flexible in thought and action and does not seem disturbed when the normal routine is changed.				
7. Seems to enjoy being around other people; is sociable and prefers not to be alone.				
8. Tends to dominate others when they are around; generally directs the activity in which he is involved.				
9. Participates in most social activities connected with the school; can be counted on to be there if anyone is.				
10. Excels in athletic activities; is well coordinated and enjoys all sorts of athletic games.				
Column Total				
Weight	1	2	3	4
Weighted Column Total				
TOTAL				

Source: From Scale for Rating Behavioral Characteristics of Superior Students by J. S. Renzulli and Hartman, *Exceptional Children, 38*, 1971, 243-248. Copyright 1971 by The Council for Exceptional Children. Reprinted with permission.

APPENDIX F

Academic Competions Open to Young Children
Extrapolated from Academic Competitions,
Multnomah Education Service District, Fall, 1986

Arts

Young Peopies Film & Video Competition - sponsored by the Northwest Film and Video Center of the Oregon Art Institute, a regional competion for k-college students. Entries should be recent works in Super 8 mm, 16 mm, and 1/2" and 3/4" video formats. Contact Anne Bell, NWF &VC, Oregon Art Institute, 1219 SW Park, Portland, OR 97205 (503) 221-1156.

Computers & Technology

Apple Computer Clubs' National Competition - open to k-12 students. Entries with programs must be run on Apple systems. Prizes are Apple computers and software. The competition is open to members and sponsors of Apple Computer Clubs. Contact Apple Computer Clubs, 175 Middlesex Turnpike, Bedford, MA 01730, (800) 343-1425.

The Scholastic Story Tree Writing Contest - open to 1st - 8th grade fiction writers of 750 words or less using Story Tree computer software. First prize is an Apple IIc computer. Contact Scholastic Story Tree Writing Contest, Department WW, 730 Broadway, New York,, NY 10003, (212) 505-3000.

Inventions

Invention Conventions - Open to all grade levels - Children develop inventions based on assessed needs, demonstrate the invention within classroom, school, district, state, or even nationally, describe the research done for it, and marketing strategies. Prizes are offered. Free or very low cost materials can be obtained from:

Marian Canudo
U.S. Patent Office
Crystal Plaza 3, R. 11E 10
Washington, DC 20231
(703) 557-3071

Dr. Leonard Molotsky
Deputy Sup't. Instruction
Richardson Independent S.D.
400 S. Greenville Ave
Richardson, TX 75081
(214) 470-5202

Invent America
P.O.Box 50784
Washington, DC 20004
(202) 737-1836

Language Arts

The National Written and Illustrated by . . . Awards Contest for Students, sponsored by Landmark Editions, Inc. It is open to student book authors and illustrators in three categories. Winners are offered a publishing contract and an all-expense paid trip to the offices of Landmark Editions for professional guidance in preapring their work for publication. Contact Landmark Editions, Inc., 1420 Kansas Ave, Kansas City, MO 64127.

The Oregon State Spelling Contest, sponsored by the Oregon Department of Education, for students grades 1 through 12. Competitions are held at school, district, and country levels before the end of may. Winners of county contests compete at the Oregon State Fair. Contact Barbara Wolfe, Oregon Department of Education, (503) 378-3817.

Write on With the Blazers and AVIA is a writing contest sponsored by the Portland Trailblazers Basketball Team, AVIA Athletic Footwear, Portland COuncil of the International Reading Association, and the Young American News Magazine for Kids. Students in grades 1-12 may enter. Prizes include Blazer tickets. Contact the Blazer office at (503) 234-9291.

The Young Writer's Contest, sponsored by the Young Writers Contest Foundation, is for grade 1-8 students who write poetry, short stories or essays (not more than 500 words). Winning works are published in an anthology. Contact Young Writers Contest Foundation, P.O. Box 6092, McLean, VA 22106, (703) 356-0718.

OATAG Student Showcase accepts writings and drawings of K-12 students. Students do not have to be in Talented and Gifted Programs. Submit to OATAG Student Showcase, Oregon Association for Talented and Gifted, P.O. Box 1703, Beaverton, OR 97075.

APPENDIX G
CONCEPTUAL MODELS

An excellent sourcebook for indepth discussion of the major conceptual models is Renzulli, J. S. (ed.), *Systems and Models for Developing Programs for the Gifted and Talented.* Mansfield Center, CT: Creative Learning Press.

(Note: The material for this Appendix was summarized from texts by Mike McCabe for his master's project, College of Education, University of Oregon, 1988, under the direction of Dr. LeoNora M. Cohen, advisor).

The Autonomous Learner Model

by George Betts
Grades Applicable: K-12

Overview

George Bett's *Autonomous Learner Model* for the talented and gifted was designed to facilitate the unique cognitive, social, and emotional needs of these students. The pupil progresses from the role of a student to that of a student/learner and finally to that of learner. Students follow a three-year timeline to complete the program. The ultimate goal of this model is to promote student autonomy.

Five components make up the model:

1. **Orientation** provides comprehensive information about the program.
2. **Individual Development** allows students to further their cognitive, emotional, and social skills, in essence, to become autonomous learners.
3. **Enrichment** activities provide opportunities for students to explore domains not usually found in K-12 curriculum.
4. **Seminars** stress research in chosen topics, presentation of that topic, and evaluation procedures.
5. **Indepth Study** allows students to select areas of interest, and concludes with a product and evaluation.

Definition and Identification

Talented and gifted students are defined as being intellectually gifted, creatively gifted, or talented. Identification is facilitated by achievement and intelligence testing, creativity tests, and aptitude tests. Other appropriate measures, academic history, and so forth can be utilized for identification.

Goals

The goals of this model as named by Betts (1985) are:

1. Developing more positive self-concepts.
2. Comprehending their own giftedness in relation to self and society.
3. Developing the appropriate skills to interact effectively with peers, siblings, parents, and other adults.
4. Increasing their knowledge in a variety of subject areas.
5. Developing their thinking, decision-making, and problem solving skills.
6. Participating in activities selected to facilitate and integrate cognitive, emotional, and social development of the individual.
7. Demonstrating responsibility for their own learning in and out of the school setting.
8. Becoming responsible, creative, independent learners.

Dimension One: Orientation

Students, parents, teachers, and others are given comprehensive information about the program. Key questions related to talented and gifted students, program goals and operations, and so forth are addressed. The orientation dimension contains the following elements:

1. Understanding gifetdness
2. Group building activities
3. Self-understanding
4. Program opportunities and responsibilities

Understanding Giftedness includes the following objectives:

- Students will develop an understanding of the term giftedness.
- Students will be able to relate the concept of giftedness to their own lives.
- Students will understand the current approaches to the education of gifted and talented students in the United States today.

A host of learning activities designed to facilitate understanding giftedness are suggested by Betts (1986), including biographical sketches, eminent people news conferences, eminent people open houses, guest speakers, readings, out-of-school interviews, videotapes, inclass press conferences (discussing self and giftedness), informal surveys, miniseminars, discussions, and closure (summary) activities.

Group Building Activities include the following objectives:

- Students will comprehend the dynamics of the group process.
- Students will be able to apply the dynamics of group process to their environment. Students will participate in group building activities.

Suggested group building activities include personal interviews, retreats, and other participatory events that enable students to interact with each other.

Self-Understanding contains the following objectives:

- Students will develop a better understanding of self and their interests, and areas of strength.
- Students will develop a more positive self-concept and self-esteem.

Activities that facilitate self-understanding include review of identification information (students learn why they have been selected), nourishing and toxic behavior (evaluating certain behaviors), learning styles inventories (enabling students to learn how they learn best), "students and learners: the transition" (mini-lecture on what differentiates between a student and a life-long learner), selected journals (teacher and students talk about the importance of keeping journals), and closure activity (allowing students to reabsorb the content and significance of previous activities).

Program Opportunities and Responsibilities contain the following objectives:

- Students will understand the *Autonomous Learner Model* for the gifted and the talented.
- Students will develop a student/learner growth plan in relation to the activities and special events of the school.

Activities that facilitate program opportunities and responsibilities are presentation of the autonomous learner model (sharing model information with others), program search and self-integration (gathering ideas for appropriate student activities from numerous sources), life-long learning approaches (discussing attributes that lead to life-long learning), guest speakers (those people who are knowledgeable in areas of interest to the students), investigation of seminars and indepth studies (exploring possible subjects that may lead to seminar topics or indepth studies), and closure activity (students are asked to synthesize a personal growth plan containing the previous activities).

Dimension Two: Individual Development

Betts's (1985) purpose in this dimension is to "give students the appropriate skills, concepts, and attitudes for life-long learning." Emphasized are the social, cognitive, and emotional needs of the student. The four areas included in this dimension are:

1. Learning skills
2. Personal understanding
3. Interpersonal skills
4. Career involvement

Learning Skills include the following objectives:

- Students will understand the importance of developing skills, concepts, and attitudes for life-long learning.

- Students will participate in activities developed to provide the skills, concepts, and attitudes for life-long learning.
- Students will demonstrate the skills, concepts, and attitudes that have been presented in this area.

Suggested activities for learning skills are teacher/facilitator preparation (a multitude of skills are selected by teacher and student for incorporation into the curriculum such as decision-making, goal-setting, research, organization, and so forth), problem-solving skills (students examine realistic world problems), creativity (providing students with opportunities to think fluently, originally, flexibly, and elaboratively), closure activity (reading a book on creativity followed by group discussion on the process of creativity).

Personal Understanding contains the following objectives:

- Students will comprehend the concepts and attitudes necessary for life-long learners.
- Students will participate in activities developed to provide the necessary concepts and attitudes for life-long learning.

Suggested activities for personal understanding are acceptance of self (recognizing one's strengths and weaknesses through journal writing), and appropriate behavior (learning how to recognize inappropriate and appropriate behavior through role playing). Activities that explore the meaning of personal responsibility, positive self-concept, and the psychology of a healthy personality are also recommended.

Interpersonal Skills contain the following objectives:

- Students will understand the importance of developing interpersonal skills necessary for life-long learning.
- Students will participate in activities developed to provide the interpersonal skills necessary for life-long learning.
- Students will demonstrate the interpersonal skills that have been presented in this area.

Activities to facilitate the development of interpersonal skills include communication skills, interviewing skills, coping skills, and a closure activity.

Career Involvement contains the following objectives:

- Students will comprehend the importance of careers and career explorations.
- Students will explore the careers of their choice.
- Students will complete a career participation activity.

Activities that help fulfill the above objectives are career exploration, career participation (students have the opportunity to participate with people in their chosen careers), and a closure activity.

Dimension Three: Enrichment Activities

This dimension provides students with the opportunity to choose what they wish to study. Enrichments are provided through

- Explorations
- Investigations
- Cultural Activities
- Service
- Adventure Trips

Explorations include the following objectives:

- Student/Learners will demonstrate the ability to select a topic that is meaningful to them.
- Student/Learners will successfully complete a group and an individual exploration.
- Student/Learners will report back to other class members what was learned and how it was learned.

Activities include group exploration (group emphasis on selecting topics and sources of information), and individual exploration.

Investigations includes the following objectives:

- Student/Learners will comprehend the process of an investigation.
- Student/Learners will successfully complete an investigation.

Activities include an investigation proposal, investigations (implementation of the proposal), and a closure activity (discuss problems and the ways the investigation could be improved).

Cultural Activities contain the following objectives:

- Student/Learners will comprehend the meaning of a cultural activity.
- Student/Learners will plan, participate in and evaluate a cultural activity.

Service objectives are:

- Student/Learners will comprehend the concept of service to the community
- Student/Learners will participate in service opportunities.

The students will learn the concept and characteristics of humanitarians, will develop activities that demonstrate humanitarianism, and get hands-on experience as humanitarians.

Adventure Trip objectives are:

- Student/Learners will plan an adventure trip.
- Student/Learners will develop the pretrip activities.
- Student/Learners will participate in and evaluate the adventure trip.

Dimension Four: Seminars

In this dimension, students are moved from the role of students to the role of learners—more independent, understanding the concept of learning and task commitment.

Seminar objectives are:

- Learners will comprehend the basic format of a seminar.
- Learners will develop and present a seminar.
- Learners will evaluate the effectiveness of their seminar.

Dimension Five: Indepth Study

This dimension incorporates all the skills learned in the preceding dimensions, resulting in an autonomous learner. The objectives here are:

- Learners will select a topic of their choice for the study.
- Learners will design a learning plan for the study.
- Learners will participate in the indepth study.
- Learners will evaluate the entire learning experience.

Concluding Remarks

This is not the most comprehensive programmatic model available but includes a variety of curricular possibilities. Provisions are available for addressing both affective and cognitive needs of the gifted and talented. Implementing the program according to the model's standards will be time-consuming and costly (especially if the dimensions do not already exist) and will require specialized personnel. Teaching students to think for themselves is the component of this model that distinguishes it from other models.

The Integrative Education Model

by Barbara Clark
Grades Applicable: K-12

Barbara Clark's Integrative Education Model is based on the four functions of the brain: the *thinking* function (the rational left hemisphere and the holistic right hemisphere), the *physical* function (movement, physical encoding, sight, hearing, smell, taste, and touch), the *intuitive* function (insight), and the feeling or *emotional* function (affective growth).

Goals

The ultimate goal is to have the following elements in place in order to optimize learning:

1. *The Responsive Learning Environment*: an open relationship between students, teachers, and parents.
2. *Relaxation and Tension Reduction*: reduce tension to stimulate better learning.
3. *Movement and Physical Encoding*: "rhythms, role-playing, physically manipulating materials and the creation of simulations of actual events" (Clark 1986b).
4. *Empowering Language and Behavior*: communicating with positive overtones.
5. *Choice and Perceived Control*: allowing students to become aware of and choose their values.
6. *Complex and Challenging Cognitive Activity*: the use of different educational models, such as, Bloom's Taxonomy and Suchman's Inquiry Method, to mentally stimulate students.
7. *Intuition and Integration*: incorporating the use of the holistic right brain into the education system as well as integrating the seven components of this model into a comprehensive learning experience.

Definition and Identification

Rather than attempting to define giftedness, the model is designed to enhance or nurture the gifts that every learner possesses. Intelligence, however, is

defined as an integrative component comprised of the cognitive (rational and spatial), feeling, physical, and intuitive functions. The model is designed for all ability levels; therefore, identifying students as gifted is unnecessary.

The Model

The *rationale* for this model is based on numerous findings from mind/brain research. One of these findings is that intelligence involves much more than the analytic thinking function. Clark (1988) reminds us that the "brain is far more complex than now imagined" and derives from research "the recognition that human limits are presently unknown."

She claims that feelings are at the base, underlying the structure of thought, and suggests that integrating emotion and cognition improves learning. Research has also proved that the environment plays a paramount role in brain growth and function, and that both hemispheres of the brain should be nurtured.

The Four Functions of Integrative Education

1. *The Thinking Function (Cognitive):* This model incorporates exercises for the "analytic, problem solving, sequential, evaluative specialization" of the left brain hemisphere and the "more spatially oriented, gestalt specialization" of the right brain hemisphere (Clark 1986a).

2. *The Feeling or Emotional Function (Affective):* Exercises are included that allow students to share or incorporate feelings and emotions that promote affective growth, thus increasing the likelihood for optimal learning.

3. *The Intuitive Function (Insightful, Creative):* Cultivating this function in a curriculum "gives a person a sense of completeness, of true integration" (Clark 1986a).

4. *The Physical Function (Sensing):* Incorporating activities that include the use of physical encoding, sight, hearing, smell, taste, and touch will serve to heighten physical awareness, thus optimizing the manner in which the brain receives and uses this information.

Brain/Mind Data Implications

Clark (1986a) urges that, in addition to cognitive exercises, "guided imagery, dreams, mind/body integrative activities, and activities nurturing intuitive development" be included in the curriculum. Instead of "a focus on group work," there should be "a focus on individual learning needs, styles and processes in small group or individual instruction, as each individual was found to learn differently for physiological, psychological and emotional reasons." Instead of "knowledge of content being the only necessary tool of the teacher and learner," recent brain/mind data suggest that "content be communicated by cooperative processes and interactions of the teacher and learner."

The curriculum should include stress-reduction techniques, using color, sound, and light to enhance the learning environment, complying with the student's interests and abilities when designing the curriculum, analyzing and evaluating open-ended or unresolved issues, encouraging new ways of viewing facts, and allowing students to be responsible for themselves.

The Sevel Components of Integrative Education

Clark (1988b) refers to these components as the "keys to optimizing learning" and advises that the most effective use of the model will incorporate all seven components.

1. *The Responsive Learning Environment.* The following characteristics (Clark 1986b) are paramount to an optimum environment:

- There is an open, respectful, cooperative relationship among teachers, students, and parents that includes planning, implementing, and evaluating the learning experience.
- The environment is more like a laboratory or workship, rich in materials, with simultaneous access to many learning activities.
- The curriculum is flexible and integrative. The needs and interests of students provide the base from which the curriculum develops.
- There is a minimum of large group lessons, with most instruction occurring in small groups or between individuals. Groups can be formed by teachers or students and should center around needs or interests.
- The student is an active participant in the learning process. Movement, decision-making, self-directed learning, invention, and inquiry are encouraged inside and outside the classroom. Students may work alone, with a partner, or in groups. Peer teaching is important.
- Assessment, contracting, and evaluation are all used as tools to aid in the growth of the student. Frequent conferences keep student, teacher, and

parents informed of progress and provide guidance for future planning.

- Cognitive, affective, physical, and intuitive activities are all valued parts of the classroom experience.
- The atmosphere is one of trust, acceptance, and respect.

2. *Relaxation and Tension Reduction.* Techniques and strategies are advised to reduce the amount of tension in a classroom environment which, in turn, optimizes learning. A variety of stress-reducing strategies are available, including autogenics, hypnotic suggestion, biofeedback, progressive relaxation, yoga breathing, and meditation. Another method to reduce tension is to alter the physical environment with calming music and appropriate colors.

3. *Movement and Physical Encoding.* Clark (1986b) stresses the importance of incorporating movement and physical encoding—"the learning process which uses the physical body to transfer information from the abstract or symbolic level to a more concrete level"—exercises to improve learning.

4. *Empowering Language and Behavior* is a strategy that, if used successfully, results in the following qualities: competence, closeness, and appreciation through having received helpful feedback. The use of empowering language is fundamental to positive classroom communication between students and teachers, as well as promoting a positive attitude toward school.

5. *Choice and Perceived Control.* This component stresses the need for students to have the opportunity to identify their own values and appreciate others' values.

6. *Complex and Challenging Cognitive Activities.* To adequately develop the student's cognitive structure, more weight is placed on this component than any other. A number of models exist that promote cognitive activities. Educators can utilize Bloom's Taxonomy to identify various types of thinking, from the simpler recall-and-compehension levels to the more complex levels of analysis and evaluation, which need to be incorporated into the gifted learner's curriculum. Suchman's Inquiry Method was designed to help teach students the scientific process, which ultimately leads to inquisitive and valuable questions. Feuerstein's Instrumental Enrichment is recommended to foster and facilitate independent learning.

7. *Intuition and Integration.* Clark (1986b) explains that "while the use of intuition can be shown to enhance the development of our other functions, until recently there has been no concern for its development." With conclusive data showing that there are differing brain functions, there is a movement underway to incorporate educational exercises that draw upon the strengths of both hemispheres of the brain. Use of fantasy and imagery is suggested to develop intuitive ability.

The second part of this component, integration, refers to a number of activities that are used in attaining the goals of Clark's Integrative Education Model. These strategies, many of which were discussed earlier, are relaxation, centering, imagery, verbal and physical affirmation, positive energy, complex and challenging cognitive experiences, and intuitive ability.

Concluding Remarks

This teaching/learning model deviates from the others in that it incorporates findings of recent brain/mind data. A strength is that development of both sides of the brain is facilitated by curricular exercises, rather than concentrating only on the rational side of the brain, which is emphasized in most other models. The model also attends to the affective nature of the student.

Educators should be trained in the proper techniques required to implement this curriculum. The overall complexity level is moderate since the model can be applied to all children. However, individualizing student programs can require an above-average amount of paperwork.

The Grid: A Model to Construct Differentiated Curriculum for the Gifted

by Sandra Kaplan
Grades Applicable: K-12

The *Grid Model* is essentially a teaching tool that aids in developing differentiated curriculum for the gifted. *Differentiated curriculum* is defined by Sandra Kaplan (1986) as "a set of learning experiences related to a given theme" that allows for "comprehensive and integrated educational opportunities for gifted students." Content, processes, and products centered around a thematic approach are the elements of a learning experience.

Goals

Kaplan (1986) identifies the purposes of the model as:

1. To translate the principles that govern an appropriately differentiated curriculum for the gifted into practice.
2. To define the process for constructing differentiated curriculum for the gifted.
3. To develop a comprehensive, articulated, and integrated curricular framework to guide the teaching/learning of the gifted.

Definition and Identification

Giftedness is not defined, nor are there criteria for identifying students as gifted in the Grid Model.

The Model

For designing curriculum, Kaplan (1974) recommends using the principles of a differentiated curriculum for the gifted/talented identified by the National/State Leadership Training Institute Curriculum Council on the Gifted and Talented.

The Grid

Learning experiences in the Grid are founded on three curricular principles explained by Kaplan (1986):

1. "*Differentiated curriculum should be integrated and comprehensive.*" Learning experiences are based on three integral parts (process, content, and product). For example:

- Process: "Productive thinking—prove or disprove skills."
- Content: "Relationship between economic, social, personal and environmental displays of power and the needs and interests of individuals, groups, and society."
- Process: "Research Skill—use of multiple and varied printed sources."
- Process: "Basic Skill—classification and organization of data."
- Product: "Development of oral presentation."

By combining these three components (process, content, and product) a curriculum is truly differentiated.

2. "*Differentiated curriculum for gifted students should be defined by design rather than happenstance.*" Curriculum must be based on a thorough understanding of the gifted. This knowledge has been compiled into the following Principles of a Differentiated Curriculum for the Gifted/Talented:

- Present content that is related to broad-based issues, themes, or problems.
- Integrate multiple disciplines into the area of study.
- Present comprehensive, related, and mutually reinforcing experiences within an area of study.
- Allow for the indepth learning of a self-selected topic within the area of study.
- Develop independent or self-directed study skills.
- Develop productive, complex, abstract, and/or higher-level thinking skills.
- Focus on open-ended tasks
- Develop research skills and methods.
- Integrate basic skills and higher level thinking skills into the curriculum.
- Encourage the development of products that challenge existing ideas and produce "new" ideas.
- Encourage the development of products that use techniques, materials, and forms.
- Encourage the development of self-understanding, that is, recognizing that using one's abilities, becoming self-directed, appreciating similarities and differences between oneself and others.
- Evaluate student outcomes by using appropriate and specific criteria through self-appraisal, criterion-referenced, and/or standardized instruments.

3. "*Defining curriculum for the gifted is not synonymous with prescribing curriculum.*" Defining the curriculum is broader in scope; not all students have to learn the same curriculum. Educators can draw from a defined curriculum and decide what will work best for a particular student or group of students.

The Grid guides the educator through an instructional sequence ultimately producing a differentiated curriculum. Basically, the Grid is a planning tool that allows an educator to separate a learning experience into integral components. The Grid contains three elements—content, processes, and products—that fall under a unifying theme (such as power, diversity, adaptation).

Selecting the Theme

A designated theme or organizing element provides structure for learning experiences. The theme influences selection of content, process, and product into a unified learning experience. Numerous learning experiences, revolving around chosen themes,

give meaning to curricula.

Utilizing themes to guide learning experiences provides for a wider expanse of learning. In contrast to a one-track learning experience, students are given the opportunity to expand on a thematic notion and include a diversity of subject matter.

Under the theme of power in a science class, the idea could be expanded to look at the power of the press (language arts), the power of words for solving problems (mathematics), the power of paintings (art), and so forth. Themes promote the extension of topics into all domains, making a learning experience more interesting and stimulating for students.

Kaplan (1986) lists factors that can assist in the process of selecting a theme:

- The theme should be related to and/or rooted in a discipline.
- The theme should be significant.
- The theme should not be age- or time-dependent.
- The theme should allow for a variety of teacher-directed and student-selected paths of learning.

Determining the Content

Although many educators consider thinking skills the most important part of a curriculum, the *content* is also of primary importance. *Content* is referred to by Kaplan (1986) as "the knowledge and information defined as useful, important, timely and interesting for gifted students to acquire as a consequence of their matriculation through an educational program." She (1986) lists basic guidelines to follow in selecting the content:

1. The specific selection of content should be referenced to the organizing element of theme.
2. The topical areas to be studied within the theme should be multidisciplinary.
3. The topics selected for the theme should represent those that are expected for all students to learn.
4. The topics selected should allow for the integration of subject areas.
5. The topics of study should allow for a time perspective (past, present, and future).

Selecting the Processes

Processes include basic skills, productive thinking skills, research skills—in short, those skills that students will acquire through learning experiences. Selecting the type of skills is contingent upon the developmental level and learning needs of the students. All skills should be promoted. The exclusion of basic skills to make room for higher-level thinking skills is not advisable.

Selecting the Product

Products can take many forms: written (charts, papers, stories), art (models, sculptures, paintings), oral presentations, visuals (movies, overheads), and so forth. A product can be either the culmination of a learning experience or a tool that facilitates learning.

Implementing the Curriculum

Selecting the theme and learning experience elements (*processes*, *product*, and *content*) is the first step in developing *curriculum*. Next, the three areas that will manage a learning experience are described by Kaplan (1986): "*Lesson plans* (motivation, practice, transfer, feedback, knowledge of results), *instructional strategies* (discovery, simulation, inquiry training), and the *organization and management of the classroom* (independent study, peer-to-peer teaching)." In addition, activities should be designed with the following factors in mind:

- developmental readiness
- interest of students
- characteristics of giftedness
- availability of resources and time
- type of gifted program

Concluding Remarks

The strength of Kaplan's *Grid Model* lies in its ability to provide a curricular structure for the teaching of talented and gifted students and, at the same time, to incorporate the principles that truly differentiate curriculum for the talented and gifted. A minimal amount of training, paperwork and costs are involved to implement the Grid. Affective and cognitive skills development are suggested and easily accommodated.

Schools will have to decide on their own definition for giftedness and develop identification procedures as appropriate for their situation. This curricular model would fit well with a comprehensive programmatic model.

The Enrichment Triad/Revolving Door Model

by Renzulli and colleagues
Grades Applicable: Elementary
A similar model exists for secondary grades.

Overview

Research on the idiosyncracies of productive and creative people helped form the basic ideas for the model developed by Joseph Renzulli and colleagues. A main feature of this model is that it permits a greater number of students to enter the TAG program than are normally allowed in. This popular model is built on the following components:

1. Assessment of Student Strengths
2. Curriculum Compacting: Modifying the regular curriculum
3. Type 1 Enrichment: General Exploratory Activities
4. Type 2 Enrichment: Group Training Activities
5. Type 3 Enrichment: Individual and Small Group Investigations of Real Problems

Goals

The Enrichment Triad/Revolving Door Model goals (Renzulli and Reis 1986) are as follows:

1. To provide enrichment to a broader spectrum of the school population than the 3 to 5 percent usually served in traditional programs for the gifted
2. To integrate the special program with the regular classroom and to develop a cooperative, rather than competitive, relationship between classroom teachers and personnel who have been assigned to the gifted programs
3. To minimize concerns about elitism and the negative attitudes that are often expressed toward students participating in programs for the gifted
4. To improve the extent and quality of enrichment for all students and to promote a "radiation of excellence" (Ward 1961) throughout all areas of the school environment

Definition and Identification

For Renzulli and Reis (1986), the definition of *giftedness* is based on an interaction among three basic clusters of human traits—these clusters being above average general and/or specific abilities, high levels of task commitment, and high levels of creativity."

The first stage of inclusion is the *talent pool*, which includes approximately 15-20 percent of the school population. The criteria of superior IQ's has priority over other identification criteria in determining students' eligibility for the program.

Four kinds of information are used in the identification process. These are psychometric information (standard tests), developmental information (rating scales from parents, student, and teacher), sociometric information (peer nominations), and performance information (past products and accomplishments). A special nominations category is available for identifying students who were not picked up through the initial identification process.

The Model

The Revolving Door Model is formulated and implemented by the organizational and service delivery components. The organizational components include a variety of necessities, such as planning teams, needs assessments, staff development, materials selection, and comprehensive evaluation. Teacher and student activities that fulfill the model objectives make up the service delivery components.

An enrichment team comprised of teachers, community experts, parents, administrators, and other school staff should oversee the program.

Action forms are included in the model to serve as guides for implementing and facilitating stated objectives and to assist in evaluating and modifying existing plans. SIMSITS (simulation situations) are provided, enabling educators to engage in simulated enrichment activities. The model also contains means for evaluating each service delivery objective.

Student Services-First Level

The first level of student services are those that include Type 1 and Type 2 enrichment activities—interest and learning style assessment, and curriculum compacting. Before a student can be advanced into Type 3 activities (second level), he or she must pass through another identification procedure. In addition to the talent pool students, individuals from the general population are invited to participate in the enrichment exercises.

Admittance of students from the general school population depends on "the difficulty level of the material, its relation to the regular curriculum, the

size of the group that can be accommodated, and the interests of the students in the general population" (Renzulli and Reis 1986).

Service No. 1: Interest and Learning Style Assessment. Renzulli and Reis (1986) suggest that this program should differ from the regular program in that "greater freedom is allowed for selecting topics of study," therefore capitalizing on student interest. A tool for assessing student interest is the Interest-A-Lyzer designed by Renzulli (1977b).

Learning strategies compatible with this model are projects, drill and recitation, peer teaching, discussion, teaching games, independent study, programmed instruction, lecture, and simulation. An instrument to aid teachers in choosing students' preferred learning styles, the Learning Styles Inventory (Renzulli and Smith 1978), takes only thirty minutes to administer.

Service No. 2: Curriculum Compacting. By compacting the curriculum—eliminating work or accelerating the pace—the talent pool or capable nontalent pool student will have free time to participate in more meaningful enrichment or acceleration activities. An action form is available to help plan and implement curriculum compacting.

Service No. 3: Type 1 Enrichment. The purpose of this service is to "expose students to new and exciting topics, ideas and fields of knowledge that are not ordinarily covered in the regular curriculum." This is facilitated by various methods, including "visiting speakers, field trips, demonstrations, interest development centers and the use of many different kinds of audiovisual materials" (Renzulli and Reis 1986). All students are able to participate in these experiences. The Type 1 objectives (Renzulli and Reis 1986) are:

1. To enrich the lives of all students by expanding the scope of experiences provided by the school
2. To stimulate new interests that might lead to more intensive followup (Type 3) activity on the parts of individuals or small groups of students
3. To give teachers direction in making meaningful decisions about the kinds of Type 2 enrichment activities that should be selected for particular groups of students

Suggesting appropriate Type 1 activities is the responsibility of the enrichment team. Type 1 activities can be used as a starting point for Type 3 activities, in which students are allowed—in small groups or as individuals—to pursue areas of interest in greater depth. The movement from Type 1 into Type 3 activities is termed "revolving."

There are a total of six action forms to guide the planning and implementation of Type 1 experiences. These forms are the Type 1 planning guide, community resource record, resource directory cards, Type 1 resources by subject area, form for recording sources for Type 1 resources, and the Type 1 enrichment documentation form.

Service No. 4: Type 2 Enrichment. This service contains group training activities that concentrate on developing the cognitive and affective realms: creative thinking skills, creative problem solving and decision making, critical and logical thinking, and affective skills. Other Type 2 activities may include how-to-learn skills: listening, observing, reading, notetaking, outlining, interviewing, surveying, analyzing and organizing data; advanced research skills and reference materials (preparation for Type 3 activities), library skills, and community resources; and written, oral, and visual communication skills. The purpose of the Type 2 objectives are to develop skills in the above mentioned areas.

Student Services: Second Level

A separate identification procedure is utilized to allow students entry into Type 3 enrichment activities from the general talent pool (Types 1 and 2). The procedure is termed *action information* and represents or depicts the extreme interest level of a student regarding a particular topic. Renzulli designed the action information message, a recording tool, to distinguish between genuine student interest and superficial or marginal student interest. Those students that enter into Type 3 experiences are differentiated from talent pool students based on degree of interest.

Type 3 Enrichment: Individual and Small Group Investigations of Small Problems.

Renzulli and Reis (1986) present the following Type 3 objectives:

1. To provide opportunities in which students can apply their interests, knowledge, creative ideas, and task commitment to a self-selected problem or area of study
2. To acquire advanced-level understanding of the knowledge (content) and methodology (proc-

ess) that are used within particular disciplines, artistic areas of expression, and interdisciplinary studies

3. To develop authentic products that are primarily directed toward bringing about a desired impact upon a specified audience
4. To develop self-directed learning skills in the areas of planning, organization, resource utilization, time management, decision-making, and self-evaluation
5. To develop task commitment, self-confidence, feelings of creative accomplishment, and the ability to interact effectively with other students, teachers, and persons with advanced levels of interest and expertise in a common area of involvement

Procedures are available for evaluating Types 1, 2, and 3 enrichment activities.

Concluding Remarks

Incorporating a higher percentage of students into the program is a major strength of this model. This is truly a programmatic model including provisions for curricular modifications, program evaluations, the affective and cognitive domains, and so forth. Because of the model's comprehensive nature, the complexity level is high, and application requires considerable effort and a full-time staff person for implementation. The paperwork load will be heavy.

Training capable personnel is essential. Because of these factors, costs will be significant. Using task commitment as one of the three factors involved in identification has the drawback of discriminating against underachievers.

The Pyramid Model

by June Cox, Neil Daniel, and Bruce Boston
Grades Applicable: K-12

Overview

Based on the Richardson Foundation study of detailed questionnaires from 1,600 school districts around the nation, the pyramid model was developed to pull together promising practices. It is a general model for delivery of services based on the notion that programs for able learners should be integrated with the regular school program, that students should be able to progress at their own rate, that programs should be comprehensive (K-12, all content areas, all levels of ability), that able learners have different intelligences and abilities, and that provision of programs and services should occur in regular classrooms, special classes, and special schools (Cox 1982; Cox and Daniel 1984; Cox, Daniel, and Boston 1985; Feldman 1985).

Goals

1. Special attention should be given to children with superior abilities without labelling them as "gifted."
2. Rigid identification cutoffs such as IQ scores should be avoided. Children should not be excluded from situations that meet their needs because of some arbitrary cutoff.
3. Assessment of student abilities should be broadened, as all students' abilities should be assessed. There are many kinds of intelligences and different ways of measuring them.
4. Students should move as fast and as far as they are able through the curriculum without the barriers of the age-in-grade lockstep. Flexible pacing should be adopted at all levels.
5. Gifted students are gifted all the time. Pullout programs are insufficient to meet their needs. Regular classroom teachers must meet the needs of the gifted in their classes, but a range of options should be available, including special classes and special schools.
6. A written philosophy for educating able learners is needed for each school district.
7. Ongoing staff development should be provided to teachers, consultants, and administrators to help them encourage and identify able learners.
8. There must be a good fit between teaching strategies and learning styles of gifted students.

Definition and Identification

Able learners include students, ranging from higher than normal ability to those who are extraordinarily gifted in one or more of a variety of diverse intellectual domains. Able learners may comprise 25 to 35 percent of a school population. Identification should use multiple measures and means and

should not be based on arbitrary test score cutoffs. Students should not be identified and labelled as "the gifted." Rather, programs or services may be labelled and students assigned to programs based on need or interest.

The Model

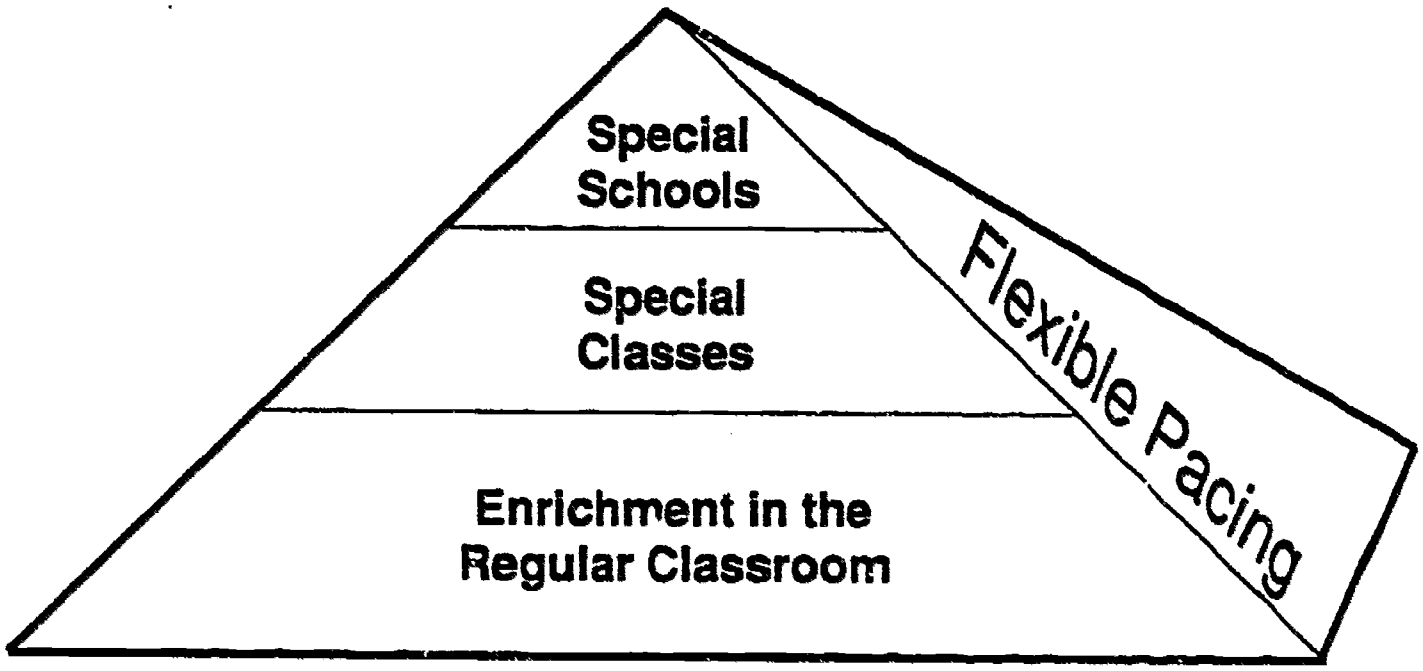
The model is conceptualized as a pyramid as shown in figure G.1. One slab is flexible pacing, in which students move at their own pace through the curriculum through a variety of options (see Flexible Pacing, p. 25). The face of the pyramid demonstrates the comprehensive nature of the model, in which provisions are made at several levels depending on the needs of the gifted student. Most able learners will have at least some of their needs met through enrichment in the regular classroom. As students' needs become greater, special classes should be provided. For students of extraordinary ability, special schools will probably be necessary.

Concluding Remarks

Because it is an overall organizational model, the Pyramid Model can incorporate aspects of other models. The flexible pacing and comprehensive notions are particularly well-suited to Oregon's mandate.

FIGURE G.1: PYRAMID MODEL

Source: Cox, Daniel, and Boston (1985).



APPENDIX H
A CURRICULUM CRITERIA CHECKLIST

The following criteria (Clark & Kaplan, 1981) are appropriate for all good educational experiences; however, the characteristics found among gifted learners make them especially necessary to a differentiated curriculum. To be sure your curriculum is appropriate for gifted learners check to see if it includes provisions for all of these criteria:

___ 1 *Continuity.* A comprehensive set of learning experiences is provided that reinforces specific curricular objectives.
___ 2 *Flexibility.* The scope and sequence of the curriculum are modified to accommodate emerging student and teacher needs.
___ 3 *Responsiveness to learner needs.* Definition of the curriculum is based on an assessment of individual/group abilities, interests, needs, and learning styles.
___ 4 *Diversity.* Alternative means are provided to attain determined ends within a specified curricular framework.
___ 5 *Integration.* The integrative use of all abilities, including cognition, emotion, intuition, and mind/body, is provided in a single curriculum.
___ 6 *Openness.* Preset expectations are eliminated that might limit the learnings within the curricular framework.
___ 7 *Independence.* Some type(s) of self-directed learnings are provided.
___ 8 *Increasing levels of advanced abstraction and difficulty.* Acceptance of the student's readiness to learn beyond traditional age/grade expectations and provisions for stimulating such readiness are present.
___ 9 *Substantive learning.* Significant subject matter, skills, products, and awarenesses that are of consequence or of importance to the learner and the disciplines are included.
___ 10 *Decision making.* Students are able to make some appropriate/relevant decisions regarding what is to be learned and how it can be learned.
___ 11 *Principles of learning.* Teaching practices that allow for motivation, practice, transfer of training, and feedback are included.
___ 12 *Creation/re-creation.* The creative process is applied to improve, modify, etc. one's creations to challenge prevailing thought and offer more appropriate solutions.
___ 13 *Interaction with peers and variety of significant others.* Students can learn about and meet with individuals who share the same and different gifts/talents.
___ 14 *Value system.* Consistent opportunities are available to develop and examine personal and societal values and to establish a personal value system.
___ 15 *Communication skills.* Verbal and nonverbal systems and skills are developed to dialogue, share, and exchange ideas.
___ 16 *Commitment to society.* Provisions are made to understand and relate to the society in which one lives and to find one's place in it.

Source: Clark (1988)

Appendix I
Suggested Broad-Based Themes

Interdisciplinary Topics:

Adventure
Aging
Archaeology
Beauty
Chance
Change
Civilization
Colonization
Communication
Community
Conflict
Cooperation
Courage
Cultures
Destructior.
Discovery
Energy
Environments
Extinction
Family
Fantasy
Food
Freedom
Future
Government
Greed
Grief
Growth
Health
Humor
Invention
Labor
Measurement
Middle Ages
Mystery
Myth
Origins
Peace
People
Poverty
Progress
Punishment
Recreation
Relationships
Renaissance
Revolution
Space
Structure
Survival
Systems
Technology
Time
Tradition
Travel
Tyranny
Wealth
Work

Source: Jill Evans, TAG Teacher, Parkrose School District, OATAG Conference, October 9, 1987.

APPENDIX J
MATERIALS FOR THE GIFTED

The following is an alphabetically arranged and briefly annotated list of asssociations, publishers, and books and materials by subject where information and/or materials particularly suitable for meeting the needs of gifted children can be purchased. Addresses and telephone numbers (if available) are provided for your convenience.

ASSOCIATIONS

Council for Exceptional Children, 1920 Association Drive, Reston, VA 22091, (703) 264-9494. Handicapped and gifted students, professional development, information services, early childhood, bilingual, career development, CEC journals, periodicals on behavioral disorders, youth suicide. The Association for the Gifted (CEC-TAG) publishes *Journal for the Education of the Gifted (JEG)* four times each year. It is a scholarly, peer-reviewed journal. Regular membership is $66 per year, student membership is $29.50. The journal subscription alone is $30.

National Association for Gifted Children (NAGC), 4175 Lovell Road, Suite #140, Circle Pines, MN 55014. Handbooks on gifted education and cassette presentations from conferences; also, the journal, *Gifted Child Quarterly*, a scholarly, refereed journal that focuses on research. Membership is $45 per year.

Oregon Association for Talented and Gifted (OATAG), P.O. Box 1703, Beaverton, OR 97075. (503) 629-0163. Twice-yearly conferences, parent retreats, books and materials, advocacy and support at state and individual level, parent affiliate groups, *The Different Drummer* (published four times per year). Membership is $20 per year.

PUBLISHERS

Continental Press, 520 E. Bainbridge St., Elizabethtown, PA 17022. (800) 233-0759. Workbooks in reading-thinking skills, reading comprehension, math problems, and computer software.

Creative Competitions, P.O. Box 27, Glassboro, NJ 08028. OM (Odyssey of the Mind) and other competitions.

Creative Learning Press, Inc. P.O. Box 320, Mansfield Center, CT, 06250. Resource guide for preschool and primary gifted, Renzulli Scales, other books by Renzulli, Learning Styles Inventories and Guidebooks for developing I.E.P. for G/T.

Creative Publications, P.O. Box 10328, Palo Alto, CA 94303. (800)-USA-1100. Manipulatives and problem solving materials in mathematics and other areas.

Dale Seymour Publications, P.O. Box 10888, Palo Alto, CA 94303. (800) 872-1100. Extensive math, computers, calculators, science, language arts, graphics, teacher resources.

D.O.K., P.O. Box 605, East Aurora, NY 14052. Curriculum materials on a variety of topics, creativity, thinking; also, books for educators.

Educational Impressions, 249 Gaffle Road, P.O. Box 77, Hawthorne, NJ 07507. (201) 423-4666. Enrichment curriculum materials on thinking, creativity, writing; resource books for research projects, "ologies" books, center activities. Also, filmstrips and software.

Foxtail Press, P.O. Box 2996, LaHabre, CA 90632. Critical and creative thinking.

Free Spirit Publishing, Inc., 123 N. Third St., Suite 716, Minneapolis, MN 55401. (800) 735-7323. Language arts, gifted education, guidance and counseling, library/media center, special education, parents.

Gifted Education Press, P.O. Box 1586, 10201 Yuma Court, Manassas, VA 22110. (703) 369-5017. A variety of books on differential education for the gifted. Also publish a newsletter.

Good Apple, P.O. Box 299, Carthage, IL 62321. (800) 435-7234. Books and software in arts, literature, math, bulletin boards, posters, teacher helpers, self-concept.

GCT, Inc., P.O. Box 6448, Mobile, AL 36650. (800) 476-8711. Books, software on research and thinking skills, language arts, home schooling, science, philosophy, future, magazines, study skills, music, drama, math, affective education. Also publish magazine, *Gifted Child Today*.

Midwest Publications, P.O. Box 448, Pacific Grove, CA 93950 - (408) 375-2455 - Workbooks and teacher guides to analytical and critical thinking skills, figural and verbal analogies, sequences, spatial reasoning.

National Leadership Training Institute on the Gifted and Talented (N/S-LTI) Ventura County Superintendent of Schools, 535 E. Main Street, Ventura, CA 93009. (805) 652-7345. A variety of handbooks about the gifted and talented for educators and parents; curriculum for enhancing thinking skills and creativity.

Northwest Clearinghouse for Gifted Education, ESD #121, Seattle, WA 98148. Books on the gifted for educators and parents.

Opportunities for Learning, Inc., 20417 Nordhoff Street Dept. 2BE, Chatsworth, CA 91311. (818) 314-2535. (K-8) Basic and enrichment curriculum materials, thinking skills, science, math, literature, social studies, positive attitudes, teacher aids.

Peller and Associates, Inc., P.O. Box 106, Hawthorne, NJ 07507. (800) 451-7450. (K-12) Science kits, audio-visuals, computer software, games, books, multi-media kits, videocassettes, future studies.

Pro.Ed., 8700 Shoal Creek Blvd, Austin, TX 78758-9965. (512) 451-3246. Books on the gifted for educators and parents.

SOI Systems, P.O. Box "D", Vida OR 97488. (503) 896-3936. Assessment, training, background, and diagnostic materials using Meeker's Structure of Intellect (based on Guilford). Training materials based on subject areas as well as other categories.

Stevens and Shea Publishers, Inc., P.O. Box 794, Stockton, CA 95201. (209) 465-1880. (K-12) Problem solving and creativity in all subjects, future, environment, robotics, electronics, biology, world history, foreign language.

Sunburst, 39 Washington Ave., Pleasantville, NY 10570. (800) 431-1934. Computer software in all subject areas for all grade levels.

Thinking Caps, Inc., P.O. Box 7239, Phoeniz, AZ 85011. (602) 956-1515. Games, task cards, and portable learning centers on a variety of subjects.

Trillium Press, P.O. Box 209, Monroe, NY 10950. A wide variety of sourcebooks, independent study activities and self-contained units on topics ranging from reading, math and science to thinking skills and CPS.

Troll Learn and Play, 100 Corporate Drive, Mahwah, NJ 09430. (800) 247-6106. Educational games, books, and toys.

Zephyr Press, 430 S. Essex Lane, Dept S8 Tucson, AZ 85711. (602) 745-9199. Global curricula, resources for peace, learning to live together, cultural diversity, ecology.

MATERIALS BY SUBJECT AREA

Below are some materials listed by subject area that we have found useful. This is not an exhaustive list. If you find other materials by subject area you believe are particularly useful for teaching the gifted, please send this information to: Dr. LeoNora Cohen, TAG Institute, Teacher Education, University of Oregon, Eugene, OR 97403.

Science

Aliki (1972) *Fossils Tell of Long Ago*. New York: Harper and Row.

Aliki (1976) *My Visit to the Dinosaurs*. New York: Harper and Row.

Aliki (1977). *Wild and Wooly Mammoth*. New York: Harper and Row.

Cohen and Flick (1981). *Exparding Childrens' Thinking Through Science*. Columbus, OH: Ohio State College of Education. The ERIC Clearinghouse on Science, Mathematics and Environmental Education.

Eldin, Peter (1978). *The Great Big Make It and Do It Book*. Racine, WI: Western Publishing Co.

Humberstone, Elliott (1981). *Things That Go. Things Outdoors. Things at Home*. Tulsa, OK: EDC Publishing.

McCormack, Allen (1979). *Outdoor Areas as Learning Laboratories: CESI Sourcebook*. Columbus, OH: Ohio State College of Education. ERIC Clearinghouse on Science, Mathematics and Environmental Education.

Nathan and Shalit (1981). *Science Magic Tricks*. New York: Henry Holt and Co.

(various authors). *Let's Find Out Series*. New York: Franklin Watts, Inc.

Math

Adler, David (1975). *3D, 2D, 1D*. New York: Crowell Junior Books.

Anno, M. and M. (1983). *Anno's Mysterious Multiplying Jar*. New York: Putnam.

Charosh, M. (1974). *Number Ideas Through Pictures*. New York: Crowell Junior Books.

Creative Publications offers many manipulatives and math problem solving materials. Free catalog is available (please see list of publishers).

READING/LANGUAGE ARTS/ WRITING

Baskin, Barbara H., Harris, Karen H. *Books for the Gifted Child*. New York and London: R. R. Bowker Company, 1980.

BOOKS ABOUT WRITING AND BOOK-MAKING

Aliki (1986). *How a Book is Made*. New York: Crowell Jr. Books.

Benjamin, C. (1985). *Writing for Kids*. New York: Harper.

Cassidy, S. (1979). *In Your Own Words: A Beginner's Guide to Writing*. New York: Doubleday.

Fisher, L. (1986). *The Paper Makers*. Boston, MA: Godine.

Greenfield, HI. (1976). *Books from Writer to Reader*. Knob Noster, MO: Crown.

Kennedy, X. J., and Kennedy, D. (1982). *Knock at a Star: A Child's Introduction to Poetry*. Boston, MA: Little, Brown.

Weiss, H. (1974). *How to Make Your Own Books*. New York: Crowell.

Books as Models for Writing

Cole, B. (1986). *Princess Smartypants*. New York: Putnam.

Cole, B. (1987). *Prince Cinders*. New York: Putnam.

Keats, E. J. (1968). *A Letter to Amy*. New York: Harper.

Oakley, G. (1987). *The Diary of a Church Mouse*. New York: Athenum.

O'Neill, C. (1987). *Mrs. Dunphy's Dog*. New York: Viking.

Scieszka, H. (1989). *The True Story of the Three Little Pigs*. New York: Viking.

Vesey, A. (1985). *The Princess and the Frog*. Boston, MA: Atlantic/Little Brown.

Williams, V. (1986). *Cherries and Cherry Pits*. New York: Greenwillow.

Walsh, H. (1981). *The Green Book*. New York: Farrar, Straus, and Giroux.

Autobiographies and Biographies of Writers

Cleary, B. (1988). *A Girl from Yamhill*. New York: Morrow.

Fritz, J. (1982). *Homesick: My Own Story*. New York: Putnam.

Johnston, J. (1977). *Harriet and the Runaway Book: The Story of Harriet Beecher Stowe and Uncle Tom's Cabin*. New York: Harper.

Meigs, L. (1933). *Invincible Louisa*. Boston, MA: Little, Brown.

(Thanks to Barbara Kiefer, Teacher Education. University of Oregon, for her help in suggesting books for Language Arts/Reading.)

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Clark, B. (1988). *Growing up gifted* (3rd. ed.). Columbus, OH: C. E. Merrill.

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Cohen, L. M. (1987c). 13 tips for teaching gifted children. *Teaching Exceptional Children*, 20(1), 34-38.

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