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ABSTRACT

This manual is intended to assist teachers in Nebraska's schools in meeting the needs of high-ability learners in their classrooms. Chapter 1 focuses on curriculum differentiation regarding the content, process, and product. Bloom's taxonomy of thinking is discussed; a list of acceptable student projects for elementary and secondary students is provided; and a chart describing instructional and management strategies for differentiation is included. Chapter 2 discusses curriculum compacting for those students who already show mastery of their respective grade-level curriculum. Preassessment, modification, and learning activities are addressed. A sample independent study contract is provided. Chapter 3 suggests alternatives for educators to enrich the curriculum for high-ability learners. Different models for curriculum integration are described, and guidelines for interdisciplinary planning are provided. Chapter 4 suggests means to accelerate the curriculum for high-ability learners. Chapter 5 demonstrates ways to use cooperative learning in an appropriate manner for high-ability learners, and Chapter 6 discusses how mentoring can be an invaluable tool for high-ability learners. Social and emotional needs of high-ability learners are outlined in Chapter 7, while funding issues and concerns are addressed in Chapter 8. The final chapter has suggestions for staff development. (References are provided for each chapter.) (CR)



Promising Curriculum and Instructional Practices for High-Ability Learners

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***Promising Curriculum and
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High-Ability Learners
Manual***



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Commissioner's Comments

TO: Nebraska Educators

FROM: Douglas D. Christensen, Ph.D.

DATE: April 15, 1997

RE: Promising Curriculum and Instructional Practices for High-Ability Learners

The Nebraska Department of Education is committed to providing quality education for all of the students in the state. *Promising Curriculum and Instructional Practices for High-Ability Learners* is a resource for local school districts to use in meeting the needs of high-ability learners. The manual is not prescriptive, rather it offers a menu of practices that educators may use in a variety of classroom settings.

Written by Nebraska educators for Nebraska educators, this manual can be used by teachers looking for ways to meet the needs of high-ability learners in their classrooms. The companion manual, *Procedures for Identifying High-Ability Learners*, is also available on the Department of Education's home page. Identification is the first step in meeting the needs of learners with high-ability. The second step is designing instructional strategies to meet those needs. The promising practices included in this manual are examples of strategies that teachers can use.

We are grateful to the writers and reviewers of this manual for the time and effort they contributed. We welcome comments and suggestions from teachers who will use it.



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Introduction

This manual is intended to be used by teachers in Nebraska's schools and by teams that include school board members, administrators, counselors, and community members. Feel free to adapt the materials and use in any form to meet the needs of your students. We welcome your suggestions, and hope that you will contact the Nebraska Department of Education with your comments regarding the helpfulness of this manual.

Beliefs of writing team members have guided them in the development of this manual. They include:

All high-ability learners will be provided the opportunity

- to reach their full potential.
- to contribute positively to society.
- to become effective decision makers, problem solvers, and effective critical thinkers.
- to become increasingly responsible and accountable for learning.
- to become well adjusted socially and emotionally.
- to become life-long learners.
- to receive equitable learning experiences.

We believe that

- High-ability learners are in all populations.
- High-ability learners have a fundamental right to appropriate education.
- High-ability learners have unique learning needs.
- High-ability learners should be identified and served.
- High-ability learner education exists to produce productive citizens.
- High-ability learners require a variety of challenging experiences.
- High-ability learners need to be with other high-ability learners enough time to allow them to progress in their studies at a rate commensurate with their abilities.



We believe that

- Educators have a responsibility to be trained to meet students' social and emotional needs.
- Multicultural criteria should be used to identify high-ability learners.
- Parents/guardians are valued partners, parents, and educators have responsibility to work together to meet student needs.
- The purpose of identification is to identify student needs and to meet them.
- Financial and human resources need to be committed to high-ability learners.
- Serving high-ability learners does not mean other students are **not** being served, but that these strategies will raise learning for other students.
- Equality is not sameness.
- Each child deserves to have his/her needs met.

Chapters 1-6 of this manual contain promising practices. Chapter 1 focuses on curriculum differentiation regarding the content, process, and product. Chapter 2 discusses curriculum compacting for those students who already show mastery of their respective grade-level curriculum. Chapter 3 suggests alternatives for educators to enrich the curriculum for high-ability learners. Chapter 4 suggests means to accelerate the curriculum for high-ability learners. Chapter 5 demonstrates ways to use cooperative learning in an appropriate manner for high-ability learners, and Chapter 6 discusses how mentoring can be an invaluable tool for high-ability learners.

Social and emotional needs of high-ability learners are outlined in Chapter 7, while funding issues and concerns are addressed in Chapter 8. The final chapter has suggestions for staff development.



Chapter 1

Curriculum Differentiation

Differentiation=Modifications in **content, process, and product** based on the needs of the student.

High-ability students are found in full-time, self-contained classrooms, magnet schools, pull-out programs, resource rooms, regular classrooms, and every combination of these settings in Nebraska. No matter where these students obtain their education, they need an appropriately differentiated curriculum designed to address their individual characteristics, needs, abilities, and interests. Educators should not set an upper limit on how much or how fast students may learn. Instead, they should seek to raise the overall level of attainment of all students.

It takes courage and commitment to make the changes needed to provide opportunities for advanced learning. Teachers do not need to create a new curriculum to meet the needs of high-ability learners. Instead they need to differentiate or modify the curriculum that is already defined by the school district in which they teach. Changes in content, process, and product must happen for an objective to be differentiated.

The unique characteristics of the students must serve as the basis for decisions on how the curriculum should be modified (Feldhusen, Hansen, & Kennedy, 1989; Maker 1982; TAG, 1989; VanTassel-Baska et al., 1988). *Procedures for the Identification of High-Ability Learners*, a companion manual developed by the Nebraska Department of Education, addresses these characteristics. All modifications in content, process and product are made to accommodate and nurture these traits.

Preassessment is vital in curriculum design. Teachers need to assess what a student already knows about the unit, concept, problem, theme or skill before they can appropriately plan instruction. Possible preassessment strategies that differ from the traditional forms of the unit pretest include mind mapping the present understanding of a concept, or brainstorming everything a student knows about a topic or idea.



Principles of a differentiated curriculum for high-ability learners include:

1. Present content that is related to broad-based issues, themes, or problems.
2. Integrate multiple disciplines into the area of study.
3. Present comprehensive, related, and mutually reinforcing experiences within an area of study.
4. Allow for the in-depth learning of a self-selected topic within the area of study.
5. Develop independent or self-directed study skills.
6. Develop productive, complex, abstract, and/or higher level thinking skills.
7. Focus on open-ended tasks.
8. Develop research skills and methods.
9. Integrate basic skills and higher-level thinking skills into the curriculum.
10. Encourage the development of products that challenge existing ideas and produce “new” ideas.
11. Encourage the development of products that use new techniques, materials, and forms.
12. Encourage the development of self-understanding, i.e., recognizing and using one’s abilities, becoming self-directed, and appreciating likenesses and differences between oneself and others.
13. Evaluate student outcomes by using appropriate and specific criteria through self-appraisal, criterion references and/or standardized instruments.

(Kaplan, 1979. National/State Leadership Training Institute on the Gifted and Talented)



Modifying The Content

Content consists of ideas, concepts, descriptive information, facts, rules and principles that are presented to learners. Content modification includes the use of:

Content consists of ideas, concepts, descriptive information, facts, rules and principles that are presented to learners.

1. Acceleration—Providing the opportunity for students to move more rapidly through a particular curricular sequence without regard to age.
2. Compacting—Adapting the regular curriculum by either eliminating work that has already been mastered or streamlining work that may be mastered at a quicker pace.
3. Variety—Ideas and content areas should be extensions of the regular curriculum.
4. Reorganization—Selecting new arrangements of content e.g., functional similarities, categorical groups, descriptive similarities, in place of the typical chronological organization.
5. Flexible pacing—Allowing for individual characteristics to determine the pace.
6. Use of more advanced or complex concepts, and materials—Posing more challenging questions or situations that force the learner to deal with the intricacies of the content. Using novel and sophisticated content.
7. Use of abstractions—Going beyond the facts and the obvious to the conceptual framework, underlying ideas, symbolism, and hidden meanings of the content.

Additional suggestions:

When possible, students should be encouraged to move through content areas at their own pace. If they master a particular unit, they need to be provided with more advanced learning activities, not more of the same activity. Their learning characteristics are best served by thematic,



Students need more advanced learning activities, not more of the same activity.

broad-based and integrated content, rather than single-subject areas in isolation. In addition, such concept-based instruction expands opportunities to generalize and to integrate and apply ideas.

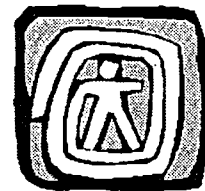
Middle and secondary schools are generally organized to meet student needs within content areas. Providing an interdisciplinary approach is another way of modifying curriculum. Jacobs and Borland (1986) found that high-ability learners benefit greatly from curriculum experiences that cross or go beyond traditional content areas, particularly when they are encouraged to acquire an integrated understanding of knowledge and the structure of the disciplines.

Modifying the Process

Process is the presentation of content, including the learning activities for students, the questions which are asked, as well as the teaching methods and thinking skills used.

Process modification includes the use of:

- Higher levels of thinking—Emphasizing questions that enable the learner to analyze, synthesize or evaluate.
- Open-endedness—Asking questions that promote critical and creative thinking.
- Inquiry and discovery—Providing opportunities for the learner to arrive at self-drawn conclusions or generalizations.
- Active exploration—Providing opportunities for movement and learner driven exploration.
- Inductive and deductive reasoning—Asking the learner to cite the sources, clues given, and logic used in drawing conclusions.
- Freedom of choice—Providing opportunities for self-directed activities such as independent study.
- Group interactions/simulations—Using structured simulations for group problem-solving.
- Variety—Encouraging a variety of teaching strategies.
- Pacing
 - ⇒ The rapidity with which content is presented.
 - ⇒ The extension of time and deadlines so that further integration of ideas may take place.
 - ⇒ Flexibility in time allowance.



Although instructional strategies depend on the age of the students and the nature of the disciplines involved, the goal is always to encourage students to think about subjects in more abstract and complex ways. Activity selection should be based on student interests, and activities should be developed in ways that encourage self-directed learning. Bloom's Taxonomy of Educational Objectives (1956) offers the most common approach to process modification.

Modifying The Product

Products are the outcomes of instruction that consolidate learning and communicate ideas. Modifications in products should:

- Possess characteristics that are professional in nature.
- Address real problems, audiences, and concerns.
- Synthesize rather than summarize information.
- Include a self-evaluation component.

Listed below are some ideas for product modification (taken from *If the Shoe Fits* by Carolyn Chapman) according to Gardner's Multiple Intelligences.

The goal is always to encourage students to think about subjects in more abstract and complex ways.

Verbal/Linguistic—magazines, lab work, field trips, collections, dramatic reading, speeches, mnemonics, problem solving centers, manipulatives, graphic organizers, games, films.

Musical/Rhythmic—curriculum songs, raps, cheers, jingles, poems, choral reading; rhythmic sounds and patterns; moving to the beat; using music.

Logical/Mathematical—puzzles, calculators, games, patterns and their relationships, research, mathematical operations, challenge tasks, categorizing facts and information, analogies, mnemonics, time lines, outlines, Venn diagrams and matrices, computers.

Visual/Spatial—camera, variety of art material, creative explorations of manipulatives, analogies, posters, charts, graphics, illustrations, demonstrations.



A differentiated learning environment supports the cognitive, affective, and social development of the high-ability learner.

Bodily/Kinesthetic—centers, simulations, interviews, projects, creating things, making collections.

Intrapersonal—problem solving, setting goals, journals, centers, independent learning, reflection.

Interpersonal—video, film, filmstrip, jigsaw, electronic mail, group mobiles, collages, comic strips, songs, poems, graphic organizers such as the web and Venn Diagram.

Learning Environment

Learning environment is the physical and psychological setting in which instruction takes place. High-ability students need to be placed in an environment that challenges them, but does not “punish them” for being rapid learners. This student-centered environment should foster complexity and independence by encouraging openness and mobility of students. A differentiated learning environment supports the cognitive, affective and social development of the high-ability learner. Grouping practices should be flexible, fitting the instruction and the needs of the student.

Conclusion

Developing curriculum that is sufficiently rigorous, challenging, and coherent for students is a challenging task. Appropriately differentiated curriculum produces well-educated, knowledgeable students who have worked hard, mastered a substantial body of knowledge, and can think clearly and critically about that knowledge.

BOOK REPORT FORM

The levels of Bloom's Taxonomy reinforced by each activity on this form are indicated with these abbreviations:

K Knowledge

An Analysis

C Comprehension

Syn Synthesis

Ap Application

Eval Evaluation

Name _____

Book Title _____

Author _____

An : Why do you think the author gave the book this title?

Syn : Think of another title for this book. Why did you choose it?

An : Which character is most like you? How?

An : Which character is least like you? How?

Eval : What happens in the story that you wish could happen to you?
Why?

An : What subject does this book make you want to learn more about? Why?

Ap : List some sources where you could research this topic.

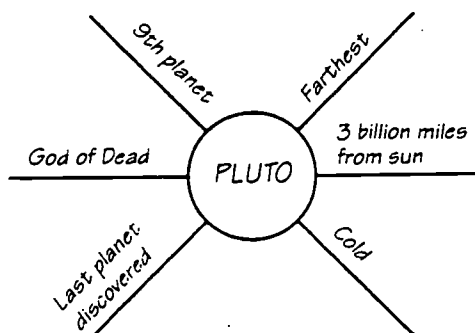
TAXONOMY OF THINKING

Category	Definition	Trigger Words	Products
SYNTHESIS	Re-form individual parts to make a new whole	Compose, Design, Invent, Create, Hypothesize, Construct, Forecast, Rearrange parts, Imagine	Lesson Plan, Song, Poem, Story, Ad, Invention
EVALUATION	Judge value of something vis-à-vis criteria Support judgment	Judge, Evaluate, Give opinion, Viewpoint, Prioritize, Recommend, Critique	Decision, Rating/Grades, Editorial, Debate, Critique, Defense/Verdict
ANALYSIS	Understand how parts relate to a whole Understand structure and motive Note fallacies	Investigate, Classify, Categorize, Compare, Contrast, Solve	Survey, Questionnaire, Plan, Solution, Report, Prospectus
APPLICATION	Transfer knowledge learned in one situation to another	Demonstrate, Use guides, maps, charts, etc., Build, Cook	Recipe, Model, Artwork, Demonstration, Crafts
COMPREHENSION	Demonstrate basic understanding of concepts and curriculum Translate to other words	Restate, Give examples, Explain, Summarize, Translate, Show symbols, Edit	Drawing, Diagram, Response to question, Revision
KNOWLEDGE	Ability to remember something previously learned	Tell, Recite, List, Memorize, Remember, Define, Locate	Workbook pages, Quiz, Test, Exam, Vocabulary, Facts in isolation

ACCEPTABLE STUDENT PROJECTS

For primary students:

- Draw or trace pictures that represent learning onto transparencies. Narrate information to listeners as your pictures are shown.
- Use a graphic "map" or chart that the teacher has used in other settings. Examples: story map, character chart, advance organizer.
- Survey others; transfer your data to a chart or graph.
- Create a game for others to play to learn the same information.
- Create a mobile, diorama, display, or other visual representation of your data.
- Create dictionaries for specific topics, or translate words into another language.
- Draw attribute webs. Write brief topic ideas on the spokes of the web. Example:



For students in all other grades:

- Choose an idea from the primary section above.
- Make a filmstrip on blank filmstrip material; narrate.
- Create a puppet show and present it.
- Create a radio or television broadcast or a video production.
- Hold a panel discussion, round-robin discussion, or debate.
- Write a diary or journal of an important historical event or person; write a speech a person might have made at the time.
- Create a time line of events: personal, historical, social, etc.
- Working with several other students, create a panel discussion about a topic of a certain historical time period or about how different historical figures might react to a current problem of today.
- Create an invention to fill a personal or social need.
- Present biographical information dressed as the person investigated.
- Write a song, rap, poem, story, advertisement, or jingle.
- Create a travel brochure for another country or planet.
- Create an imaginary country from papier-mâché. Locate essential features.
- Make a model; describe its parts and the functions of each.
- Create a chart or poster to represent synthesis of information.
- Write a script for a play or a mock trial.
- Write a journal of time spent and activities completed with a mentor in the community.
- Collect materials from a lobbying or public service agency; summarize information. (TIP: Use the *Encyclopedia of Associations* found in the reference section of most public libraries.)
- Write to people in other places about specific topics; synthesize their responses.
- Create a learning center for teachers to use in their classrooms.
- Rewrite a story, setting it in another time period, after researching probable differences.
- Gather political cartoons from several sources; analyze the cartoonists' ideas.
- Critique a film, book, television show, or video program; write an editorial and send it to your local newspaper.
- Write a how-to manual for those who need instruction on how to do or use something.
- Contact publishers to find out how to get something you've written published.
- Come up with your own ideas.

Instructional and Management Strategies for Differentiation

Strategy	Description of Strategy	Suggestions for Use with Gifted Learners	Why Appropriate for Gifted Learners
<p>Compacting</p>	<p>A 3-step process that (1) assesses what a student knows about material to be studied and what the student still needs to master, (2) plans for learning what is not known and excuses student from what is known, and (3) plans for freed-up time to be spent in enriched or accelerated study.</p>	<ul style="list-style-type: none"> • Explain the process and its benefits to students and parents • Document preassessment • Allow student much choice in use of time "bought" through previous mastery • Use written plans and timelines for accelerated or enrichment study • Can use group compacting for several students 	<ul style="list-style-type: none"> • Recognizes large reservoir of knowledge • Satisfies hunger to learn more about more topics than school often allows • Encourages independence • Eliminates boredom and lethargy resulting from unnecessary drill and practice
<p>Independent Projects</p>	<p>Process through which student and teacher identify problems or topics of interest to the student. Both student and teacher plan a method of investigating the problem or topic and identifying the type of product the student will develop. This product should address the problem and demonstrate the student's ability to apply skills and knowledge to the problem or topic.</p>	<ul style="list-style-type: none"> • Build on student interest • Allow the student maximum freedom to plan, based on student readiness for freedom • Teacher provides guidance and structure to supplement student capacity to plan and to ensure high standards of production • Use preset timelines to zap procrastination • Use process logs to document the process involved throughout the study • Establish criteria for success 	<ul style="list-style-type: none"> • Builds on student interest • Satisfies curiosity • Teaches planning and research skills at advanced levels • Encourages independence • Allows work with complex and abstract ideas • Allows long-term and in-depth work on topics of interest • Taps into high motivation

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Instructional and Management Strategies for Differentiation (Continued)

Strategy	Description of Strategy	Suggestions for Use with Gifted Learners	Why Appropriate for Gifted Learners
Interest Centers or Interest Groups	Interest centers (often used with younger students) and interest groups (often used with older students) typically provide enrichment for students who can demonstrate mastery/competence with required work. They are sometimes a vehicle for providing students with meaningful study when basic assignments are completed.	<ul style="list-style-type: none"> • Make certain that the task is suitably complex for a high-ability learner • Allow students of like interests to work together • Involve the gifted learner in researching and creating interest centers and interest-group tasks • Allow some large blocks of time for working on the interest • Change centers less often, using more depth in fewer topics 	<ul style="list-style-type: none"> • Allows opportunity for study in greater breadth and depth • Allows introduction of topics not in the regular curriculum • Can satisfy curiosity—explore <i>hows</i> and <i>whys</i> • Can allow student choice • Can draw on ability to make connections between fields and topics
Tiered Assignments	In a heterogeneous class, a teacher uses varied levels of activities to ensure that students explore ideas at a level that builds on their prior knowledge and prompts continued growth. Student groups use varied approaches to exploration of essential ideas.	<ul style="list-style-type: none"> • Use advanced materials • Make certain the activity is complex • Ensure that students must transform ideas, not merely reproduce them • Make the activity open ended 	<ul style="list-style-type: none"> • Allows early exploration and application of principles • Encourages broader reading than otherwise • Can focus on problem solving • Can provide meaningful work with peers of similar interest and readiness • Can develop creative talents
Flexible Skills Grouping	Students are matched to skills work by virtue of readiness, not with the assumption that all need the same spelling task, computation drill, writing assignment, etc. Movement among groups is common, based on readiness on a given skill and growth in that skill.	<ul style="list-style-type: none"> • Exempt gifted learners from basic skills work in areas where they demonstrate a high level of performance (100% is not required) • When skills work is needed, place it in a meaningful context as often as possible • Ensure that gifted learners develop advanced knowledge and skills in their areas of talent 	<ul style="list-style-type: none"> • Acknowledges quick mastery and recall of information • Can provide opportunity for development of advanced skills, including skills of production and expression • Can "buy" time for advanced work • Can allow a chance for independent work at the student's own pace

Instructional and Management Strategies for Differentiation (Continued)

Strategy	Description of Strategy	Suggestions for Use with Gifted Learners	Why Appropriate for Gifted Learners
<p>Learning Centers</p>	<p>Learning centers can be “stations” or collections of materials learners use to explore topics or practice skills. For gifted learners, learning centers should move beyond cursory exploration of topics and practice of basic skills, and should provide study in greater breadth and depth on interesting and important topics.</p>	<ul style="list-style-type: none"> • Use some learning-center tasks that require transformation and application • Don't have all students do all tasks at all centers • Monitor what students do and learn at centers • Balance student and teacher choice about centers to be completed 	<ul style="list-style-type: none"> • Can draw on advanced thinking skills • Can provide for continuous development of student skills • Can draw on advanced reading skills • Can allow for student independence • Can develop advanced skills with research and technology
<p>High-Level Questions</p>	<p>In class discussions and on tests, the teacher attempts to ensure that the highly able learner is presented with questions that draw on advanced level of information, require leaps of understanding, and challenge thinking.</p>	<ul style="list-style-type: none"> • All learners need to think at high levels • What makes a question high level for an advanced learner is its combination of advanced information with complex thinking requirements • Require students to defend answers • Use open-ended questions 	<ul style="list-style-type: none"> • Can tap into talent as a thinker • Can develop metacognition (awareness of one's thinking) • Can move the student beyond easy facility with glib answers to developing logic and integrity in substantiating answers and opinions with reason and evidence
<p>Mentorships/ Apprenticeships</p>	<p>The students works with a resource teacher, media specialist, parent volunteer, or community member to develop and carry out all or part of a project or task. This is also a useful way to help students develop skills of production in a field and to develop career awareness.</p>	<ul style="list-style-type: none"> • Match the mentor with the child's talent/interest area • Make sure agreements concerning roles are written down for mentor, students, teacher, and parent • Be specific about the goals of the collaboration • Monitor the progress of the mentorship and help the students address snags if they occur 	<ul style="list-style-type: none"> • Can allow the students to work on expert-level problems and tasks • Can draw on creativity • Can set problem solving in a relevant context • Can allow adult-level conversation • Can introduce the child to meaningful yardsticks of performance

Instructional and Management Strategies for Differentiation (Continued)

Strategy	Description of Strategy	Suggestions for Use with Gifted Learners	Why Appropriate for Gifted Learners
Contracts/ Management Plans	Contracts take a number of forms that begin with an agreement between student and teacher: The teacher grants certain freedoms and choices about how a student will complete tasks, and the student agrees to use the freedoms appropriately in designing and completing work according to specifications.	<ul style="list-style-type: none"> • If the student has a high level of basic skills in a subject, do not make <i>skills work</i> the centerpiece of the contract • When possible, focus the contract on concepts, themes, or problems and integrate the skills into the required projects or products • Establish clear and rigorous standards for success at the outset • Provide rules of the contract in writing 	<ul style="list-style-type: none"> • Can eliminate need for unnecessary skills work • Can make skills more relevant by integrating them into high-interest tasks • Can draw on the curiosity and independence of the student • Can allow for advanced and extended study on topics of interest • Can encourage the student to generalize, make connections, and be original

From Challenging the Gifted in the Regular Classroom. Facilitators Guide. Alexandria, VA: Association for Supervision and Curriculum Development.

BUILDING CURRICULUM FOR THE LEARNER

Information about the Learner	Principles of a Differentiated Curriculum	Differentiated Objectives
<p>INTERESTS Home:</p> <p>School:</p> <p>ABILITIES Strengths:</p> <p>Weaknesses</p> <p>NEEDS</p> <p>EXPECTATIONS</p>	<p>___ content based on issues, themes, problems</p> <p>___ multi-disciplinary</p> <p>___ comprehensive, related, and reinforcing activities</p> <p>___ in-depth learning of self-selected topics</p> <p>___ self-directed study skills</p> <p>___ higher level thinking processes</p> <p>___ open-ended tasks</p> <p>___ research skills and methods</p> <p>___ basic skills integrated with higher level thinking skills</p> <p>___ products using new techniques, materials, and forms</p> <p>___ self-understanding</p> <p>___ evaluation using self-appraisal, criterion-referenced and/or standardized instruments</p>	<p>CONTENT:</p> <p>PROCESS:</p> <p>PRODUCT:</p> <p>AFFECTIVE</p>
		32





Chapter 2

Curriculum Compacting

The goal of
teaching is learning,
not teaching.

—Hugo Rossi

While advancement has influenced virtually every other aspect of our lives in the last century, it has not had the impact we might have expected on instructional practices. In virtually every elementary classroom in the country all children will begin on the first page of their mathematics textbook during their first week in school, regardless of their ability level or whether they already know the material. Students who already know the material or who can master it in a fraction of the time it takes other students face boredom, inattentiveness, underachievement, and may become discipline problems. Worse yet, they never learn how to work or study because everything they encounter in school is often too easy for them. Curriculum compacting offers technical assistance to teachers in modifying the regular curriculum for students who need this adjustment (National Research Center on the Gifted and Talented, 1993).

The “dumbing down” of contemporary textbooks, a phrase used by Terrel Bell, former U.S. Secretary of Education in 1984, is one reason many average and above average students demonstrate mastery of the curriculum. Kirst (1982) also believes that textbooks have dropped by two grade levels in difficulty over the last 10-15 years.

Usiskin (1987) and Flanders (1987) indicate in recent findings that not only have textbooks decreased in difficulty, but also that they incorporate a large percentage of repetition to facilitate learning. After investigating three popular mathematics textbook series, Flanders concluded that students in grades 2-5 who used these math textbooks encountered approximately 40-65% new content over the course of the school year. By eighth grade the amount of new content had dropped to 30%. It is no wonder high-ability students are frustrated.

The mismatch between student ability and instruction is another reason many above-average students are not challenged in the classroom. Chall and Conard (1991) stress the importance of the match between a learner’s abilities and the difficulty of the instructional task, stating that the optimal match should be slightly above the learner’s current level of function. When the match is optimal, learning is enhanced. “If the match is not optimal learning is less efficient and development may be halted.”



It is reasonable to conclude that many high-ability students are spending much of their time in school practicing skills and learning content they already know. All of these factors may be causing our most capable children to learn less and may be encouraging their underachievement (The National Research Center on the Gifted and Talented, 1993).

This chapter will examine the use of curriculum compacting as a means by which to meet the needs of high-ability students in the regular classroom.

What is Curriculum Compacting?

Curriculum compacting is a system designed to adapt the regular curriculum to meet the needs of high-ability learners by either eliminating work that has already been mastered or by streamlining work that may be mastered by students at a quicker pace than that of their peers. Curriculum for the high-ability learner should be compacted in those areas that represent the student's strength. For example, if you have a student who is outstanding in mathematics and average in reading, you would compact for the student in math, but not in reading. As well, you might have a student who requires compacting in two or three areas. Whichever it is, you are allowing students to reduce the amount of redundant work and expand and enrich their learning experience.

It is important that we not use compacted time for improving skills in a weaker subject.

The Process

There are three very important steps to the curriculum compacting process:

1. **Preassessment**

This step of compacting requires the teacher to be familiar with the objectives of the lesson, activity, or unit. The teacher then must determine what competencies certain students have and give them full credit for what they already know. In other words, which students know the objectives? Most prepackaged curriculum comes with pre- and post-testing material. These, or teacher prepared materials, can be used to determine the student's current level of knowledge and skill.



At the beginning of the unit the teacher would administer the pretest to the entire class. The teacher would decide the level of competency required to be considered for mastery of the material, and those receiving an “A” would be given the chance to “buy time” for enrichment or alternate activities in that particular subject. It is important not to use this time for improving skills in a weaker subject.

This should not be vacation time from the regular class, but a time to provide intellectual challenge for the student.

2. Modification

The second step of compacting involves the modification of instruction for those students who have shown mastery of the material. Flexible grouping is one effective way to accomplish this. It allows the teacher an opportunity to set up a learning contract with those students so they may flow in and out of the regular class based on the gaps in their skills knowledge. Another method is use of independent studies in the area of the compacting.

3. Learning Activities

The third step involves setting up the learning activity to take the place of the standard curriculum. Students who show mastery of a given skill or the entire chapter “buy” time from the regular class to work on more appropriate curriculum. To be successful, the learning activities need to have well planned expectations and evaluation. They must also be based on student interest and focus on student strengths. This should not be vacation time from the regular class, but a time to provide intellectual challenge for the student.

Joseph Renzulli and Linda H. Smith created a record keeping form called “The Compactor” to be used with students for whom compacting is done. A model of “The Compactor” is provided for you.



THE COMPACTOR
Joseph Renzulli & Linda H. Smith

Student's Name: _____

Areas of Strength	Documenting Mastery	Alternate Activities

How to Use the Compactor

1. One Compactor should be used for each student.
2. Record all curriculum modifications provided for the student
 - a. Left column—record the student's areas of strength.
 - b. Center column—describe the methods used to ascertain the student's mastery of the skill or concept.
 - c. Right column—describe the activity the student will be working on in place of the regular grade level work.

Alternate activities are usually related to the subject area that is being compacted. However, they may represent activities from other subject areas, and ongoing projects related to a student's interest.

3. All pretests, Compactors, and records of alternate activities should be kept in a specific folder for each compacting student.



4. Never use the time “bought” to remediate an area of weakness for the student.

Following is an example of how this process works:

At the beginning of a geography unit on maps the teacher offers the opportunity to take a pretest over the unit to everyone in the class. The end-of-the-unit test can also be used as a pretest to test for mastery of skills.

The high-ability learner is not bored with the content of the material, but becomes impatient with the pace.

Those students who choose to take the pretest are given the opportunity the next day, while the rest of the class works on map vocabulary or other review skills. The students who show mastery of skills by receiving an “A” on the pretest are then given the opportunity to choose alternate activities to work on during geography time each day. A Compactor is filled out on each of these students explaining what is being compacted, how mastery was proved, and what the alternate activities are. These activities focus on expanding map skills. It is important that compacting students not be given “free time.” Structured, managed replacement work is vital to the enhancement of the lesson.

The three columns of the Compactor for the student might look like this:

Area of Strength	Documenting Mastery	Alternate Activities
Maps	Pretest over map unit	Will create a country in papier-mâché. Will present to class. Will consult classmates when creating their countries.



High-ability learners do not always know everything; they just learn it quicker and to a much greater depth of understanding than their peers.

This type of compacting works well for classes where the material has been previously taught and a pretest can be given to determine mastery. Math, spelling, language arts, geography, and reading skills are areas that work well with this type of compacting.

Other compacting methods are needed when the curriculum is new, and high-ability students learn it more quickly and to a much greater depth of understanding than their peers. Instruction should be modified for them.

Often the high-ability learner is given the regular work and when finished given an "extra credit" project. This usually means they have twice as much work as the other students. They do not find this attractive in the least. The high-ability learner is not bored with the content of the material, but becomes impatient with the pace. The teacher should provide more depth and breadth in the topic to keep the high-ability student challenged.

In the second part of this chapter we will look at ways to compact the curriculum in subjects such as literature, science, and social studies. Most of the curriculum in these subjects is new each year and not appropriate for pretesting. To compact in these subjects means to reduce the amount of time the high-ability learner must spend on grade level work.

The process for this type of modified curriculum compacting involves the three-step process also.

1. Preassessment

The first step in this type of compacting requires the teacher to be aware of the concepts that require mastery by all students. The teacher should then prepare a study guide for the particular unit of study, covering the most important concepts over which all students would be tested at the culmination of the unit. The qualification of the students for compacting is determined by the teacher, not a pretest score.



Students must be able to move ahead on the basis of mastery.

2. Modification

Once the teacher determines which students are able to handle the textbook material individually they are allowed time away from class at certain times, such as when the class is reading together. This would allow high-ability students the opportunity to work on a more in-depth study of the current unit being taught.

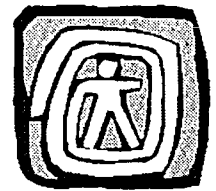
3. Learning Activities

An independent study works well as a special activity. A list of alternative topics for study is given to the student or the student offers suggestions for the study. After offering students the option of independent study, make sure they understand the study guide and the timeline for mastery of the concepts. It should also be clear that students are required to earn a "B" or higher on the class quizzes and tests. If not, they will be asked to discontinue their independent study and rejoin the class. Any problem with behavior while students are working independently will also result in termination of their independent study.

It should be explained to the class that this independent study is available only to those students who have demonstrated that they have mastered a unit of study. The teacher modifies requirements based on the individual student.

When developing a study guide for this type of compacting, the teacher uses the following guidelines:

1. Choose only those major concepts from a unit that are important enough to be evaluated.
2. Develop a timetable informing students of when quizzes or discussions will be held. They are responsible for all material covered up to that time.
3. Decide on the terms of the Independent Study Contract and discuss them with the students. Have the students initial the conditions as they agree on them. The Contract is also signed by students.



4. If terms of the Contract are broken, students will need to rejoin the regular class under the direction of the teacher.

Following is an example of a study guide taken from Susan Winebrenner's *Teaching Gifted Kids in the Regular Classroom* (1992).

Civil War Study Guide

Be prepared to:

1. Discuss the causes of war.
2. Describe the basis of the economy for the North and the South
—Quiz for 1 and 2 by January 19—
3. Know the meaning for the vocabulary words listed on pages 89, 96, 104, and 115.
4. Complete a map of the states in 1861 to show which states seceded to the Confederacy and which stayed with the Union.
5. Recite from memory Lincoln's "Gettysburg Address".
—Quiz for 1-5 by February 1—
6. Describe typical battle conditions which a soldier would be likely to encounter.
7. Narrate a 3-minute biographical sketch for any Civil War personality.
—Test for 1-7 by February 15—

We only think when confronted with a problem.

—John Dewey

After the teacher and the student have gone over the Study Guide and are both comfortable with the conditions of the compacting, an alternate activity needs to be chosen. The teacher may provide a list of alternative topics that are related to the topic being compacted or the student may choose an original idea. An example of an alternative topic for the Civil War unit may be: To demonstrate the action during a famous battle, including information about the tactics used by both sides.

When evaluating an Independent Study you may simply average the actual grades the student earns or provide an Independent Study Project Evaluation Contract. This contract should be discussed at the beginning of the study. The student should be made aware of the terms of the contract and what grade their work will earn. An Independent Study



Contract and Independent Study Project Evaluation Contract are provided at the end of this chapter. You will also want to provide the students opportunities to evaluate their own work.

The Compactor should also be filled out for this type of compacting. The Compactor is a form of Individualized Education Plan (IEP) for the high-ability learner. Parents should be made aware of the Compactor and agree to their child's participation in this type of learning activity.

Provide students with the opportunity to evaluate their own work. They will gain greater understanding and appreciation of their work and effort.

It is very important to keep a separate folder for each student. The folder should contain the Compactor, all dated pretests and any other assessment records. By keeping accurate records of the adaptations you design for qualifying students, you will have an accurate record of student effort.

We must offer high-ability learners an option 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" (Cox and Cox, 1988).

Curriculum compacting is a very "real" way to meet the needs of the high-ability learners in your classroom. As with any change in your classroom, you must remember to start slowly. Try compacting with only one or two students in one subject area at first. Once you become familiar with the process you will be more comfortable in using it. Curriculum compacting will allow you the freedom to work with these students with only a minimal amount of disruption to your class. In turn, you are providing a great learning experience for high-ability learners.

INDEPENDENT STUDY CONTRACT

The following terms are agreed to by teacher and student:

- _____ The student may learn the key concepts or the information described on the study guide independently.
- _____ The student must demonstrate competency with any assessment activity, in order to continue this same arrangement for the rest of this unit.
- _____ The student must participate in selected group activities when one day's notice is given by the teacher.
- _____ The student agrees to complete an independent project by _____ (date) to share with the class.

A description of the project follows:

The student agrees to work on the selected project according to the following guidelines while the remainder of the class is involved with the teacher.

Teacher's signature _____

Student's signature _____

INDEPENDENT STUDY PROJECT EVALUATION CONTRACT

For a grade of "B":

1. Use secondary sources to prepare your project.
2. Use a standard format.

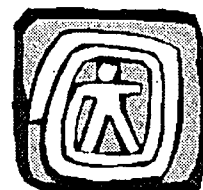
For a grade of "A":

1. Use primary sources (interviews, surveys, diaries, journals, etc.).
2. Really "get into" your topic. Produce a "real-life" product.
3. Present your information to an appropriate audience.
4. Use a unique presentation format. Ideas: Appear as your subject. Create an original filmstrip, video, etc.

Use this space to describe your project:

Teacher's signature _____

Student's signature _____



Chapter 3

Curriculum Enrichment

Introduction

The term “active classroom” evokes many connotations. Words such as “active learning,” “manipulation of data,” and “cooperative learning groups” come to mind. These activities, as well as others, generate the ideal classroom, where all comes together, and all students, no matter what their diverse needs might be, are learning and growing. What often appears to happen naturally, is the result of the careful planning, not only by the classroom teacher, but by the entire faculty and administration.

This planning can be most challenging not only for the classroom teacher, but for the whole faculty. While we know more about the learning process, due to the amount of new brain research and information on learning styles, this knowledge can lead to an “information overload” on the part of the teacher in the classroom. The complexity of this process has presented many challenges for the professional educator. Juxtaposed against the reform climate are several other changes that have affected American classrooms: changing demographics, increasing diversity of student populations, and limited fiscal resources (Hanninen, 1994). The challenge for the teacher is to select information to use from this vast amount of available research knowledge, meet societal challenges, and put into practice the appropriate classroom methodologies, based on the needs of the students in his or her classroom. School districts need to develop quick and simple delivery systems for inservice training for the classroom teacher. Teachers, either working alone or with others in instructional teams, then need to integrate this training into their repertoire of teaching skills.

This chapter, therefore, seeks to give practical ideas to the classroom teacher, to meet the needs of not only high-ability students within the classroom, but all students as well. Enriching the curriculum with innovative learning experiences will make the educational experience more meaningful for all students. Careful planning, with close attention to the formulation of student questions, execution of plans, and assessment of the activities, is crucial to the success of the learning experience.



Classroom Scenarios

I never got a passing mark in math . . . Just imagine—mathematicians now use my prints to illustrate their books. Funny me consorting with all these learned folks, as though I were their long, lost brother. I guess they are unaware of the fact that I am ignorant about the whole thing.

—M.C. Esher

Miss Smith had just finished introducing a unit about the Civil War to students in her fifth grade classroom. She had carefully planned the menu of activities for her class. The students appeared to be excited, as she explained to the students the various activities and explorations that the class would be doing. She assigned students to various groups when one student raised his hand and exclaimed, “Miss Smith, why do the smart kids get to have all the fun activities and our activities are so boring?” This situation emphasizes the point that the methodologies and curriculum delivery systems that benefit high-ability and talented students, are beneficial for all students. Making learning exciting by providing meaningful connections with the real world provides advantages that enable students to practice and apply higher-level thinking skills.

What makes learning enriching for students? Curriculum enrichment is the provision of in-depth multi-disciplinary exploration of content beyond that provided in the regular curriculum. In the past, students were presented knowledge in a “lock-step” specialized method. Knowledge was self-contained to a particular area, with students prevented from identifying important connections between various subject areas. Meaningful learning takes place when connections are established between concepts. The work of Ausubel (1968) and Neisser (1976) led to our current concepts of schematic structures of the brain. Ausubel refers to these associations as “cognitive hooks,” or instruction that provides students with links to connect otherwise discrete bits of knowledge. This enhances student ability to recognize and apply prior knowledge to new, related learning situations (Mason and Mathison, 1989).

Professional educators have a particular subject area expertise, but also have accrued knowledge in other disciplines. Educators also have access to associates whose knowledge in other subject areas differs from their own. If teachers use these resources, as well as the “untapped” resources of students, meaningful learning experiences can be assembled that can enhance knowledge for all students.



Interdisciplinary Learning

Robin Fogarty, author of *The Mindful School: How to Integrate the Curricula*, has devised ten models of curriculum integration. Beginning with an exploration within single disciplines (the fragmented, connected and nested models), and continuing with models that integrate across several disciplines (the sequenced, shared, webbed, threaded and integrated models), the continuum ends with models that operate within learners themselves (the immersed model), and finally across networks of learners (the networked model) (Fogarty, 1991). Fogarty's models are described below.

The **fragmented model**, the traditional design for organizing the curriculum, dictates separate and distinct disciplines. This model views the curriculum through a periscope offering one sighting at a time. The major academic areas are math, science, language arts, and social studies.

The **connected model** of integrated curriculum is the view through an opera glass, providing a close-up of the details, subtleties, and interconnections within one's discipline. This model focuses on making explicit connections within each subject—connecting one topic, one skill, one concept to the next; connecting one day's work or even one semester's ideas, to the next. The key to this model is the deliberate effort to relate ideas within the discipline, rather than assuming students will automatically understand the connections.

The **nested model** of integration views the curriculum through a three-dimensional glass, targeting multiple dimensions of a lessons. Nested integration takes advantage of normal combinations. For example, an elementary lesson on the circulatory system could target the concepts of systems in general, as well as facts and understandings about the circulatory system in particular.

The **sequenced model** views the curriculum through eyeglasses: the lenses are separate but connected by a commonality. Topics may be arranged or taught separately, but they are rearranged and sequenced to provide a broad framework for related concepts. Teachers can arrange the teaching of the Revolutionary War to coincide with the study of the novel *Johnny Tremain*.



The **shared model** views the curriculum through binoculars, bringing two disciplines together for a single managed focused image. In middle and secondary schools, cross-departmental partners may plan a unit of studies. In the elementary model, the self-contained classroom teacher might plan a science unit on simple machines, and a social studies unit on the Industrial Revolution.

The **webbed model** of integration views the curriculum through a telescope, capturing an entire constellation of disciplines at once. If a curriculum is “webbed,” it uses one central theme to integrate subject matter. Once a theme is chosen, it can lead to a variety of studies. An example would be the study of inventions. This could lead to studying simple machines in science, to reading and writing about inventors in language arts, to designing and building models in industrial arts, to drawing and studying Rube Goldberg contraptions in math, and to making flowcharts in computer technology class.

The **threaded model** views the curriculum through a magnifying glass: big ideas are enlarged throughout all content. This model threads thinking skills, social skills, study skills, graphic organizers, technology, and a multiple intelligences approach to learning throughout all disciplines.

The **integrated model** views the curriculum through a kaleidoscope: interdisciplinary topics are rearranged around overlapping concepts and emergent patterns and designs. The integration sprouts from within the various disciplines and teachers make matches among the commonalities as they emerge. In the secondary classroom a teacher may apply the concept of argument and evidence in math, science, language arts, and social studies. In an elementary classroom, an integrated model would be the holistic approach, in which reading, writing, listening, and speaking spring from a literature-based program.

The **immersed model** of integration views the curriculum through a microscope. The integration takes place within the student with little or no outside intervention. An example would be graduate students who are totally immersed in their field of study. Another illustration would be a second grader who literally “devours” any information in sight about dinosaurs. She may draw dinosaurs, write poems about



From the very beginning of his (her) education, the child should experience the joy of discovery.

—Alfred North Whitehead

dinosaurs, design math problems dealing with size of dinosaurs, and make clay models of dinosaurs.

The **networked model** views the curriculum through a prism, creating multiple dimensions and directions of focus. Comparing it to a three-way conference call, it provides various avenues of exploration. The learners themselves direct the process. An example would be a 5th grader who has had an interest in Native American lore since preschool. He may read books about Native American ways, play “archeological dig” to find Native American artifacts, and read fiction and nonfiction works dealing with Native Americans. He is showing responsibility for shaping his own learning.

The above organizers are merely beginnings. They can be used in a self-contained environment or across departments, and the process is continuous.

Guidelines for Interdisciplinary Planning

Mason and Mathison (1989) state that there are seven guidelines that are useful in formulating interdisciplinary lessons.

1. Formulate a goal statement that indicates the principle(s) or concept(s) to be understood at the completion of the lessons. What are the primary pieces of information that you want the students to understand? Often interdisciplinary lessons do not concentrate on the mastery of specific skills. By their very nature, these lessons usually focus on the application of skills and knowledge in novel situations. For this reason, goals of interdisciplinary lessons will usually involve helping students understand how the skills and knowledge they possess can be combined to accomplish a task, discover a solution, or explain a situation.
2. Select the primary content base that will serve as the catalyst for instruction. Often, the content base will be determined by the text. There are times, however, when your goals necessitate the use of other ancillary materials. In either case, determine the primary vehicle that will drive the instruction (e.g., a work of art or literature, a scientific or mathematical principle, an event or era in history, etc.).



The principal agent is the object itself and not the instruction given by the teacher. It is the child who uses the object; it is the child who is active, not the teacher.

—Maria Montessori

3. Identify events, discoveries, and writings within other disciplines that relate to the primary content base in a meaningful way. Through talking with colleagues and brainstorming on your own, consider information in other disciplines that seem to relate to the primary content. At this point, you may find it helpful to look at the table of contents in the textbooks you will be using. However, don't discount your own expertise, the films or plays you have seen, the books or magazine articles you have read, and your own life experience.
4. Determine the key points of intersection between the disciplines that correspond to the established terminal goal of instruction. As you investigate each cross-discipline idea in more depth, keep your terminal goal well in mind. It is often the case that we become so enthralled in the idea itself that we lose sight of our major instructional intent. While this is intellectually enjoyable, it is a time-consuming luxury that few of us can afford. Some ideas will probably need to be discarded, either because they are too complex, or because they do not fully address the goal. Other ideas may be so compelling and enlightening that you may want to revise the terminal goal to reflect the new insights gained.
5. Formulate instructional objectives. Again, it should be noted that most interdisciplinary lessons will not focus on the mastery of specific skills. Nevertheless, it is important to determine what you expect your students to be able to do when they have completed the lesson. As in other instructional planning, objectives serve as springboards for the development of the instructional strategies that you will use.
6. Identify the necessary prerequisite knowledge that students must possess in each discipline area you will address. Interdisciplinary instruction can fall apart if students lack knowledge of key principles or concepts within each discipline. Carefully consider the prerequisite skills students must have before they can successfully accomplish the objectives you have set forth. Sometimes, missing skills or pieces of information can be taught rather quickly. However, when this is not the case, it will be necessary to revise the interdisciplinary content.



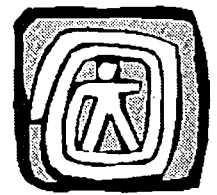
7. Formulate instructional strategies that will compel students to use their knowledge in one discipline to better understand and appreciate another. Students are not used to activating their knowledge in one discipline while studying another. For this reason, it is important to develop activities that require this transfer in a purposeful way. Depending upon the content and timeframe of instruction, you may want to use conceptual mapping, in-class debates, group projects, and/or a variety of discovery techniques to accomplish your goal. Conceptual mapping is one technique that is advocated to inspire students to make meaningful connections. The crucial component of interdisciplinary lessons, as in most instruction, is active and interested participation.

Visual Tools

Dan Hyerle, the author of *Visual Tools for Learning*, points out that “the brain works by making patterns; and we can visualize this process through a medium called “visual tools” (conceptual tools). Hyerle continues by stating that many of us have used three types of visual or conceptual tools. They are: brainstorming webs, task-specific organizers, and thinking-process maps (Hyerle, 1996). These visual tools aid in the development of upper-level thinking skills. They formulate a plan or framework from which teachers and students can investigate and form connections, which in turn, will help students internalize and apply this new learning to future situations.

Why are these visual tools so vital in the learning process? Hyerle explains:

Students are now faced with an overwhelming, ever-changing quantity of data. We are also in the midst of a renaissance in the quality of how representations of information and knowledge are represented through different technology-representations that will be transformed anew in the decades to come. Unlike pupils at the turn of the 20th century, students today often work together in cooperative groups with their peers, rather than learn from a lecturing teacher in the solitary confines of bolted-down desks (Hyerle, 1996).



More and more teachers and students are using these visual tools because, “First, we are now teaching and learning in a constructivist-cognitive paradigm. Second, new technologies and visual designs are guiding the information flow. Third, student-centered learning and ‘interactivity’ are emerging as the new structures for classroom relationships.” (Hyerle, 1996).

John Clarke defines visual tools, (semantic maps or graphic organizers) as: “. . . (words) on paper, arranged to present an individual’s understanding of the relationship between words. Whereas conventions of sentence structure make most writing linear in form, graphic organizers take their form from the presumed structure of relationships among ideas (Clarke, 1991).

These tools not only help high-ability learners, but also help other students explore the myriad of possibilities for investigations of various topics. Brainstorming webs were first introduced to help students in pre-writing activities. Now they are being used to generate new interpretations of topics. These “webs” need to be explored to the fullest, so that the topic the student has chosen can be explored to its maximum. Students should be encouraged to use their exploratory talents to investigate many kinds of possibilities of studies within an area.

Task-specific organizers help students organize their materials in a logical, sequential manner. With so much research available to students, the skills of organization and definition need to be taught to all students. These skills are commonly referred to as “graphic organizers,” and they help students develop, refine and synthesize materials for exploratory study. These “graphic organizers” can aid students in the display of knowledge, as well as forming meaningful connections with other topics within a particular discipline. A sample of a task-specific organizer is included at the end of this chapter. It should be noted that allowing students to construct their own organizers doesn’t require students to conform to a predesigned organization.

Thinking process maps are visual tools defined by fundamental and more global thinking processes, from constructing simple categories to developing new theories. Unlike task-specific organizers or



brainstorming webs, thinking process maps are visually designed to reflect fundamental patterns of thinking. Some similarities exist between task-specific maps and thinking process maps. Thinking process maps have one additional outcome. Task-specific organizers are visual tools that teachers often present to students to complete a context-specific task, whereas thinking-process maps are visual tools that teachers introduce to students ahead of time so they can create their own transfer of thinking processes to content specific tasks (Hyerle, 1996). A sample of a thinking process map is included at the end of this chapter.

Questioning for Purposeful Learning

Use questions to find out what students know. What they feel. What they need. Most important, use questions to stimulate and motivate MORE QUESTIONS! That happens if teachers start teaching for questions instead of answers.

—Nancy L. Johnson

Using questions that encourage divergent thinking can encourage students to explore topics in patterns that lead them to “exercise” areas of the brain that they may not have employed in the past. Using Bloom's taxonomy as a basis for formulating questions, teachers are able to write questions that fit the needs and learning style of every learner. Divergent questions have the purpose of challenging students to think in other domains. Most educators are trained to ask questions that seek whether or not a student can “parrot” information. While this questioning has the purpose of giving educators the information as to whether or not a student has remembered or recalled information from a particular lesson, the higher-level thinking skills are not developed. These are the skills that will be essential to students when they leave the educational system to enter the world of work. Students will need to apply, compare/contrast, synthesize, analyze, and evaluate information in order to make good decisions. A teacher can encourage the development of these skills by the type of questions that are asked during instruction. Educators need to generate a working knowledge of various types of upper-level skill questions.

A helpful strategy for educators is to develop a menu of standard questions based on Blooms’s taxonomy and use them in classroom instruction. Keeping them on 3” x 5” cards for easy reach, can help in planning those questions as a teaching unit is developed. The type of questions can be labeled in the upper right-hand corner for easy use during a lesson. A chart is included at the end of this chapter that helps in formulating not only the question, but the activity that can be used



to encourage the development of a product that complements the type of question used.

“Wait time” is important to help students generate thoughtful responses. Research indicates by giving students extra seconds that the quantity and quality of response can improve significantly. Asking students for clarification, redirecting questions, probing and prompting can encourage a better response. Questions such as, “How did you arrive at your answer?” “Can you give me an example?” will encourage students to use higher levels of thinking.

Contracting

Competent teachers have found that students differ in the ways they learn best, and therefore learn better when teachers vary their approaches to learning. Contracting makes it possible for teachers to present options that are challenging, promote development of higher-level thinking skills, and are based on student interests. Using contracts will not only enhance the talents of high-ability learners, but will present interesting educational opportunities for all students in a classroom.

Winebrenner and Berger (1994) present the following guidelines in the formulation of learning contracts.

1. In one section of the contract, list the concepts or outcomes that the whole class will learn. In another section of the contract, list a variety of alternative or extension activities from which students may choose. These activities may be developed by the teacher, the student, or both. If extension activities are developed solely by the teacher, options should include “your original idea” so that students can link their personal interest with the required curriculum. Ideas designed by the student must have teacher approval.
2. Students work on alternative activities on the days when the class is learning concepts they have previously mastered.
3. Students should be responsible for documenting their time. One option is to ask students to keep a log of



their activities on days they are not working with the rest of the class. Set guidelines for those activities.

4. Student outcomes or grades result from a combination of work completed with the class and a posttest or post-assessment activity.

The following guidelines (Winebrenner & Berger, 1994) are useful for subject areas that may not be pretestable because students may not be familiar with the material. In this case, teachers use a study guide with an independent study agreement.

1. Provide students with a study guide that contains a list of expected outcomes for a unit, which they may choose to achieve independently. Instead of working with the regular class, these students will research and present information about an alternative topic related to the general unit or theme.
2. Students work on extended activity in school during the time the class is working with regular content. Thus, the activity becomes their real work for the class period.
3. Students sign an agreement. Students rejoin the group for special experiences in which all students should participate.
4. Students who do not work on their alternative activity or do not honor the working conditions of the agreement are required to rejoin class for the duration of the unit.
5. Students present their project to an audience at an appropriate time. Written work is not required. Students are expected to present a talk accompanied by at least one visual aid. Students may also negotiate a suitable means of demonstrating what has been learned.
6. Specific guidelines for grading should be established.



Winebrenner and Berger suggest the following guidelines in the evaluation of alternative work. These guidelines are useful for pretestable subject areas where students are moving between instructional group and extension activities.

1. Alternative student work is more easily managed when student activities require more than one class period to complete. In mathematics, for example, students might research the real-world applications of the course content, work with various number bases, or investigate the lives of famous mathematicians. In writing or in English classes, students might work on more complex or open-ended writing assignments, or investigate the writing styles of several authors.
2. When eligible students work on alternative activities, the goal should be to provide them with opportunities to master challenging tasks. Students would earn the same credit as if they had completed the regular tasks as long as they adhere to the agreed-upon working conditions.

When subject areas are not pretestable because students are unfamiliar with the material, the following guidelines (Winebrenner & Berger, 1994) for grading and evaluation are useful.

1. Alternative work extends the regular curriculum. Therefore, extension projects earn at least a grade of "B" or the equivalent because the students are going beyond what is required.
2. All criteria for evaluation should be presented and understood before students begin an extended activity. Teacher expectations should be clearly stated.
3. Students earn a grade of "B" if the completed work represents typical research that merely reports secondary sources and if the presentation is properly made to an appropriate audience.



4. Students earn a grade of "A" if completed work represents unique or creative research, provides evidence of primary sources, represents an interesting or unusual synthesis of available data, or the material is presented in an original manner.
5. It is important for students to understand that they need to be working productively during school time. If they do not follow the expected working conditions, they need to rejoin the regular instructional group and may be required to make up some of the regular work. If students become immersed in the topic and wish to continue beyond the expected date, they must provide a progress report at regular intervals.
6. If point systems, rubrics, or holistic assessment methods are used for other activities, these methods may also be used to evaluate students' extended projects. Teachers may offer a potential number of points for each part of the project, for example, sources—35 points, format—20 points, presentation—30 points, organization—20 points, originality of idea—10 points, creativity—10 points, content 30—points. The total may exceed 100 points. The teacher determines what constitutes an A, B, or whatever. Students may be engaged in the creation of the scoring rubrics and evaluate their own work as the project progresses by measuring their project against rubric criteria. Responsibility for evaluating student work is then shared by the teacher and students.

The above criteria will be helpful when establishing contracts for all levels of students. These guidelines will not only aid high-ability learners in their academic progress, but will challenge all students to perform to the fullest capacity. Alternative and extension activities will challenge all learners to develop those skills that are essential to success in later life.



Assessment: Many Possibilities and Many Activities

Howard Gardner provided a means of assessing each student's capabilities, and teaching to those unique intelligences. In the book, *Multiple Intelligences in the Classroom*, Thomas Armstrong gives many unique ideas for assessing student capabilities, using Gardner's Multiple Intelligences model. He states that "the biggest shortcoming of standardized testing is that they require students to show in a narrowly defined way what they've learned during the year . . . The tests themselves usually contain largely linguistic questions or test items that students must answer by filling in bubbles on computerized forms" (Armstrong, 1994). He continues by stating that ". . . just as the theory of multiple intelligences suggests that any instructional objective can be taught in at least seven different ways, so too does it imply that any subject can be assessed in at least seven different ways" (Armstrong, 1994).

The following example indicates how Multiple Intelligences theory can be used to assess student learning. If a teacher were to assess a group of students at the end of the study of the novel, *Huckleberry Finn*, the activities may look something like this.

- Linguistic Demonstration—Describe Huck Finn in your own words, either orally or in an open-ended format.
- Logical-Mathematical Demonstration—If Huck Finn were a scientific principle, law, or theorem, which one would he be?
- Spatial Demonstration—Draw a quick sketch showing something you think Huck Finn would enjoy doing that is not indicated in the novel.
- Bodily-Kinesthetic Demonstration—Pantomime how you think Huck Finn would act in a classroom.
- Musical Demonstration—If Huck Finn were a musical phrase, what would he sound like or what song would he sing?
- Interpersonal Demonstration—Who does Huck Finn remind you of in your own life (friends, family, other students, TV characters)?



-
- **Intrapersonal Demonstration**—Describe in a few words your personal feelings toward Huck Finn? (Armstrong, 1994).

Armstrong states that in this way many students are given a chance to show what they have mastered in another manner, rather than using a narrow-focus assessment tool. Also, by taking the theory of Multiple Intelligences into consideration when planning and assessing their students, educators may be guiding students to discover a path that brings out the best of their intelligences. Included at the end of this chapter is a chart listing various ways of showing mastery. Besides these tasks, there are many other ways to assess student learning. The challenge is to find the method that suits the students in a particular classroom.

Summary

It is of the utmost importance that we recognize and nurture all of the varied human intelligences and all of the combinations of intelligences. We are all so different largely because we all have different combinations of intelligences. If we recognize this, we will have a better chance of dealing appropriately with the many problems that we face in the world (Gardner, 1987).

Curriculum Enrichment is a topic that has many diverse avenues. Educators must analyze the many diverse needs of their students, taking into consideration learning styles, various ways of demonstrating mastery, and ability levels. If students demonstrate that they have the basic skills mastered, teachers must develop each student's unique abilities and permit each student to show what he/she has learned or investigated in a variety of ways.

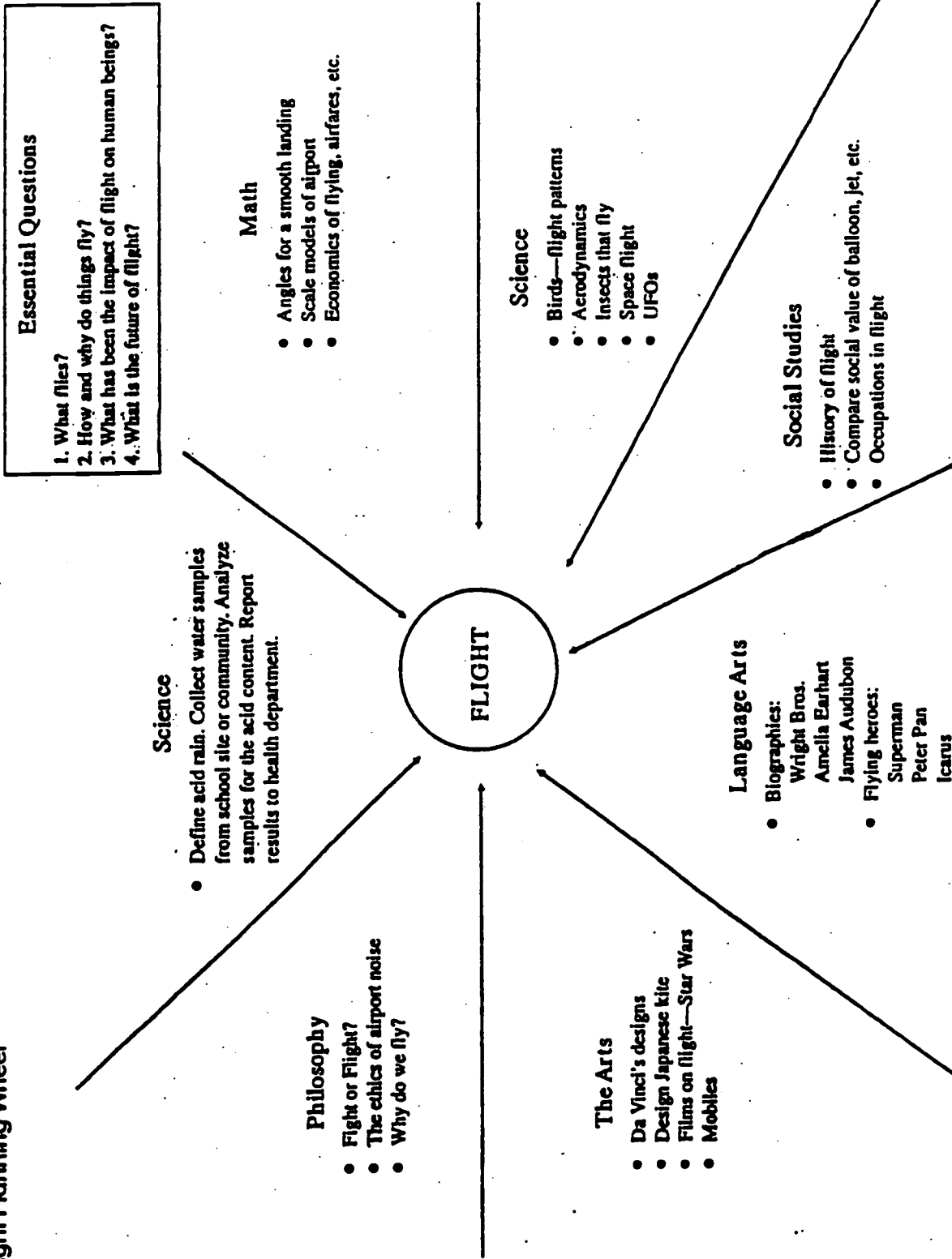
Development of enrichment topics takes time. To expect that educators can infuse all of these concepts into their repertoire at once is unrealistic. Far better that educators choose one or two areas of enrichment and infuse those skills well into the curriculum, and add new units each year, as their confidence increases.

Compare/Contrast Thinking-Process Map

The diagram is a structured thinking process map for comparing and contrasting two items. It is enclosed in a large rectangular border. At the top, there are two empty rectangular boxes for identifying the items being compared. Below these boxes is a central box labeled "HOW ALIKE?" with two arrowheads pointing towards it from the left and right. Underneath this is a large rectangular area with three horizontal lines for writing. Below that is another central box labeled "HOW DIFFERENT?" with two arrowheads pointing towards it from the left and right. At the bottom, there is a section labeled "WITH REGARD TO" in a central box. Below this label are four rows of comparison. Each row consists of a small rectangular box on the left, a double-headed horizontal arrow in the center, and a small rectangular box on the right. The entire diagram is set against a dark, textured background.

Source: Parks, S., and H. Black, (1992). Organizing Thinking, Book I. Pacific Grove, Calif.: Critical Thinking Press & Software. Reproduced by permission.

Flight Planning Wheel

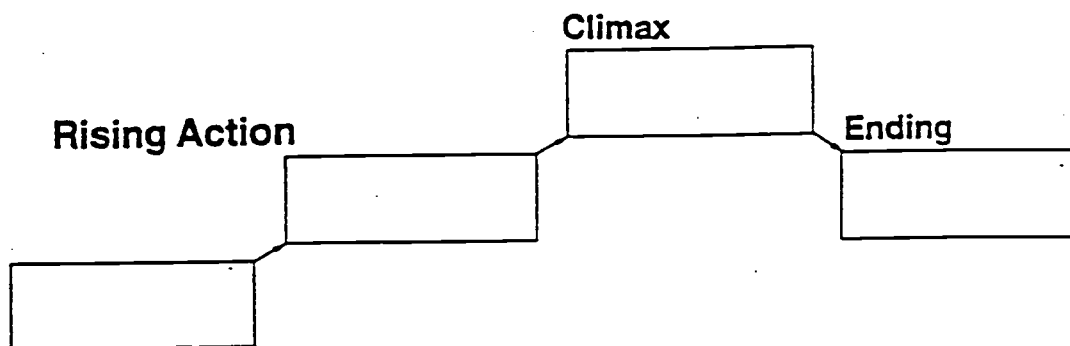


Source: Jee-bai, H.H., ed. (1989). Interdisciplinary Curriculum: Design and Implementation. Alexandria, Va.: Association for Supervision and Curriculum Development.

Introducing a Visual Tool: Task-Specific Organizer—"Rising Action"

Purpose: Use the "Rising Action" organization for identifying and analyzing the significant events leading up to the climax of a story and ending (or denouement).

1. **Example:** Distribute this completed example of the organizer, using a story students have recently read.



Introduce the vocabulary for each box (important events, climax, ending) and state the purpose for using the organizers and how this tool will help students organize the plot of a story in a meaningful way.

2. **Modeling:** Read a new story with students, and ask them to think about this organizer as they read. After completion of the story, slowly create the "Rising Action" organizer on the chalkboard without student input. Start with the climax "box," explaining your interpretation of the climax of the story. (This models your metacognitive processes with the tool.) Then proceed to show and explain the rising action of events and ending. Ask for clarifying questions.

3. **Procedures:** After completion of the modeling, ask students to create a "Rising Action" organizer on a sheet of paper. Have students draw their own organizers so that they immediately take responsibility for using and owning the tool. Discuss the need for starting at the top, using only rectangles, and linking the literature-based vocabulary to the visual tool. Discuss possible variations, such as adding more boxes, if necessary.

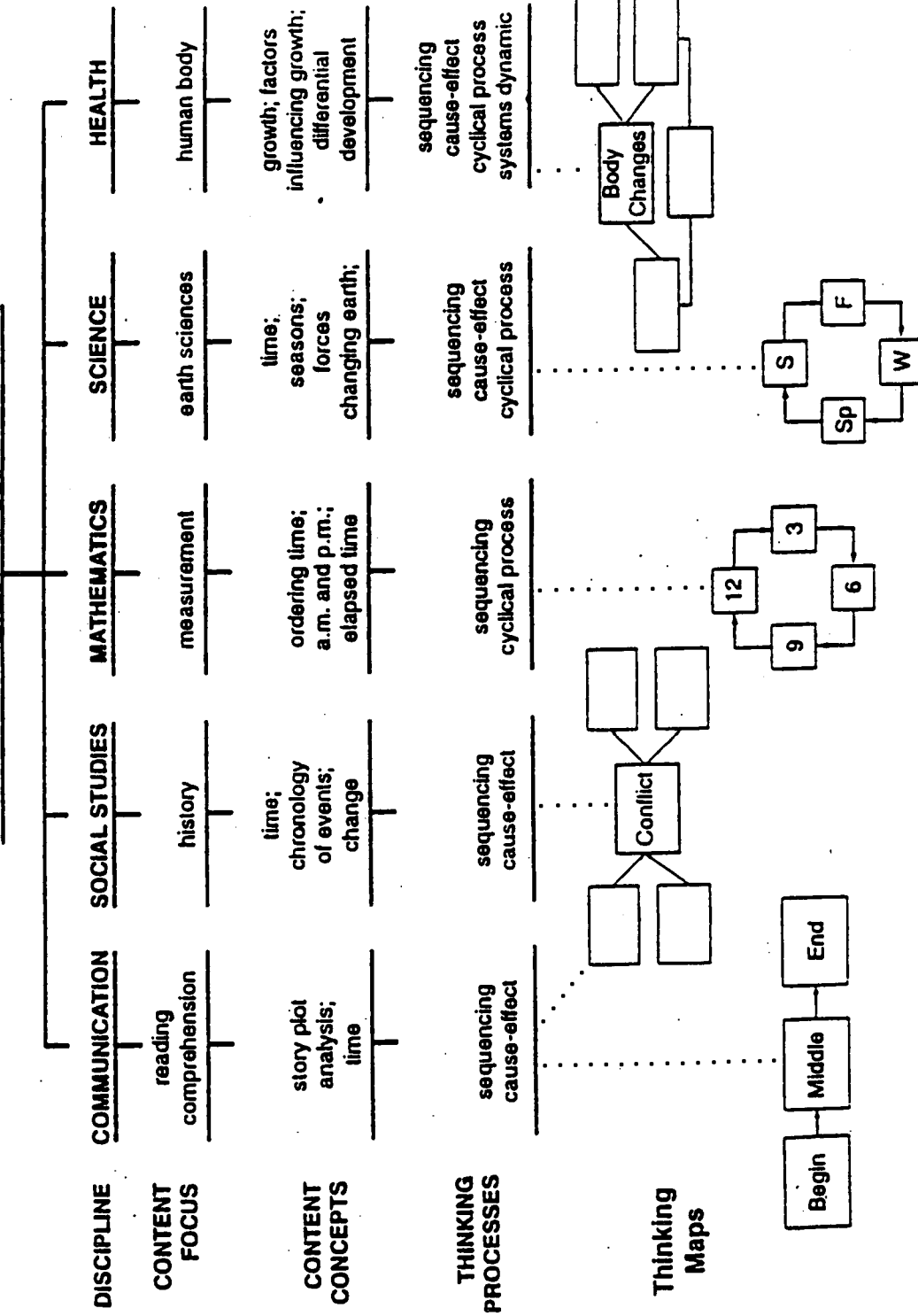
4. **Coaching:** On the next day, ask students to read a new story and structure students in a "Think-Pair-Share" format for creating a "Rising Action" organizer. As the pairs are constructing the organizers, move around the classroom and coach students as they work. Ask several pairs of students to share their organizers with the class and discuss the different interpretations and how they have used the tool.

5. **Practice:** Reinforce the use of the organizer with each reading selection. Assign the organizer for homework so that students have time to practice on their own.

6. **Reflection:** Ask students to discuss the effectiveness of the visual tool and how this tool could be used in other subject areas, such as in history.

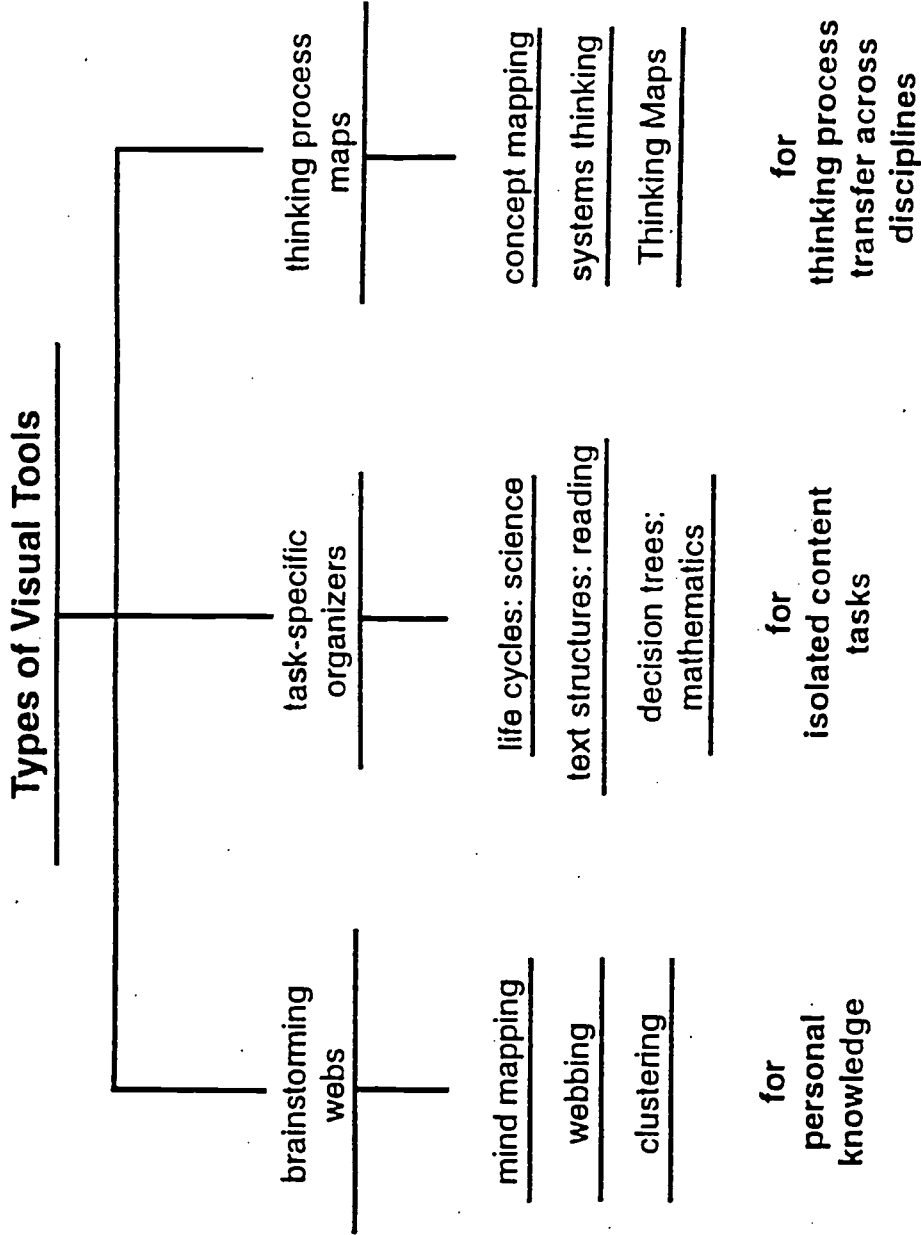
Tree Map for Interdisciplinary Design

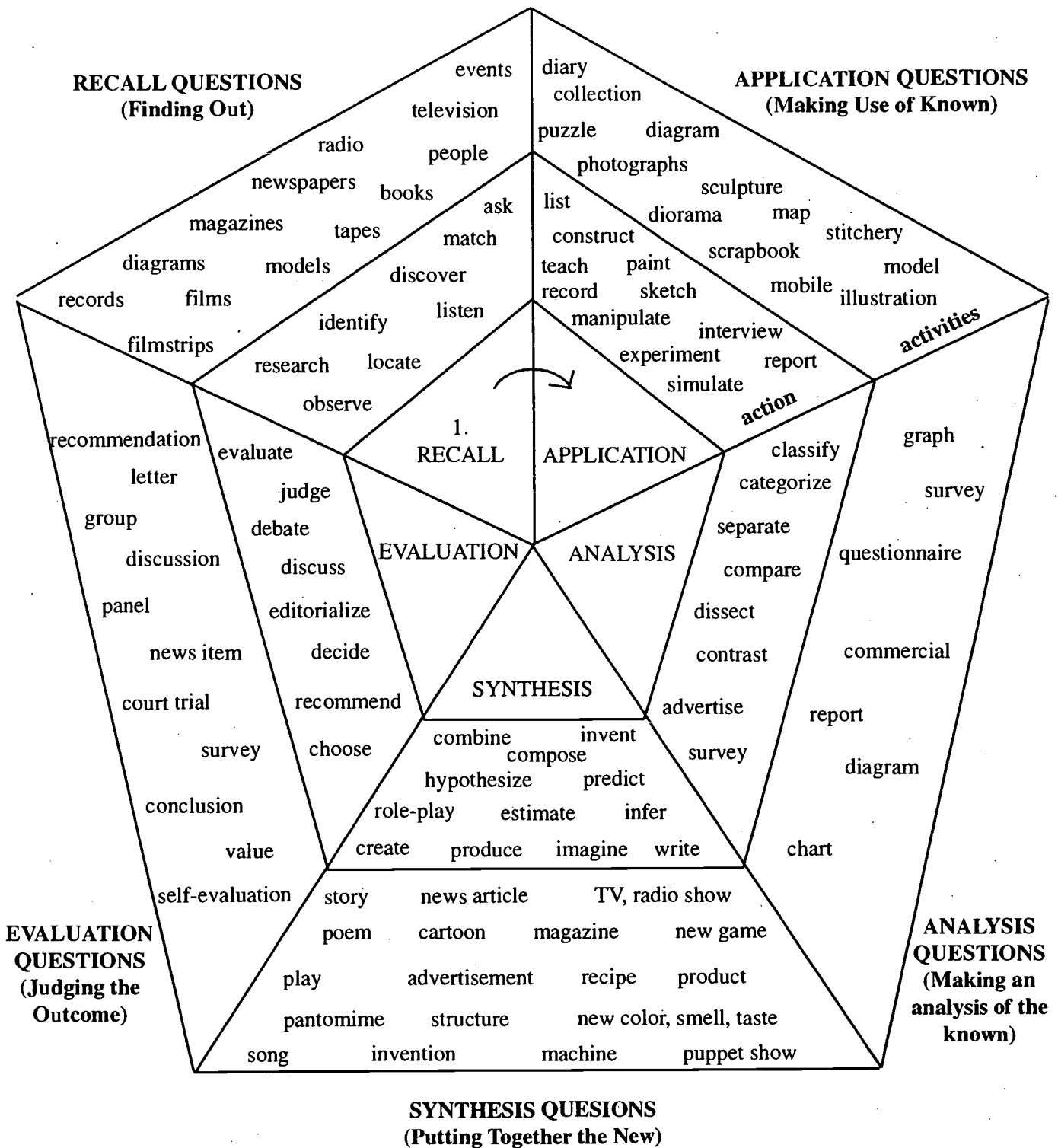
Grade 3 Theme: Time, Change, and Growth



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Tree Map Showing Types of Visual Tools





Note to Teachers: The mastery of the characteristics of each level of thinking is a great help in formulating better questions. As a teacher develops learning activities, this web may be used to select verbs (process) and noun (product) in writing questions at the various levels of thinking. Each pie shape represents one thinking level.

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WAYS STUDENTS CAN SHOW WHAT THEY KNOW

- Tell a story
- Create a puppet(s)
- Design a game
- Make a mask
- Prepare a display
- Make a drawing
- Write and teach a song
- Make a rebus story
- Write a telegram
- Design an ad
- Make a video tape
- Produce a slide show
- Make a comparison
- Bring in a collection
- Give a chart talk
- Explain an observation
- Develop an outline
- Design a word search
- Make a diorama
- Make/play an instrument
- Design a labyrinth
- Make a banner
- Design name tags
- Make a wall hanging
- Make a trademark
- Write a job description
- Give a speech
- Write a cheer
- Design a treasure hunt
- Design stationery
- Design napkins
- Tell/write directions
- Write a dialogue
- Compose music
- Make a poster
- Make a scroll
- Make a mobile
- Make a mural
- Make a sculpture
- Write a new story
- Write a letter
- Put together a newspaper
- Make an audio tape
- Tape an interview
- Give a critique
- Make/display a chart
- Make a scrapbook
- Make a time line
- Debate an issue
- Rename an object(s)
- Prepare a display
- Design a machine
- Share a painting
- Design a brochure
- Design/make awards
- Create a weaving
- Make a logo
- Prepare a sales talk
- Prepare/implement a test
- Choreograph a dance
- Design a business card
- Make greeting cards
- Develop a dictionary
- State/solve a problem
- Write and produce a skit
- Play or sing a song
- Produce a puppet show
- Mime a message
- Make a mosaic
- Write a play and produce it
- Write a poem
- Design a crossword puzzle
- Conduct a survey
- Design a booklet
- Make a video commercial
- Write a radio play
- Develop a list
- Write a biography
- Make a chart story
- Design a map (3-D)
- Conduct a political campaign
- Role play
- Design a pattern
- Share a construction
- Design a maze
- Make a 3-D object
- Write a recipe
- Design a bulletin board
- Give a demonstration
- Prepare a resume
- Give a sales talk

- Make a sand painting
- Design notepaper
- Design placements
- Develop a glossary
- Produce a dramatization
- Write and give a speech
- Design a vest/shirt with message
- Make and label a diagram
- Produce a school newspaper
- Prepare one or more transparencies
- Put together a magazine
- Draw a single phrase cartoon
- Prepare one or more graphs
- Prepare a quiz show
- Write and direct a choral reading
- Direct a short story reading
- Perform a vaudeville type skit
- Find new uses for a different item
- Make a papier mache figure
- Make a time capsule message
- Prepare a script for panel show
- Write a class newsletter
- Construct an activity calendar
- Prepare a showing of still pictures
- Put together a news magazine
- Draw a sequential cartoon
- Write a descriptive paragraph
- Prepare trivia questions
- Write a short story
- Write an advertisement
- Write quotes from books
- Write an epitaph (own/imaginary)
- Create a hyper studio presentation
- Use "Power Point" to create a presentation



Chapter 4

Curriculum Acceleration

Introduction

“The Eight Great Gripes of Gifted Kids” (Galbraith, 1985) speaks of misunderstood feelings and a sense of not belonging. To overcome these, we must be willing to question traditional practices and consider how to match resources with individual student learning needs to create effective instruction. We must dare to step outside current educational delivery systems to consider innovative approaches. More flexibility in regard to developing educational programs, grade advancement, credit options, and scheduling will provide increased options for providing instruction that meets the academic, social and emotional needs of our high-ability learners. The eight great gripes of high-ability learners are:

1. No one explains what being a high-ability learner is all about—it’s kept a big secret.
2. The stuff we do in school is too easy and it’s boring.
3. Parents, teachers, and friends expect us to be perfect, to do our best all the time.
4. Kids often tease us about being smart.
5. Friends who really understand us are few and far between.
6. We feel too different and wish people would accept us for what we are.
7. We are overwhelmed by the number of things we can do in life.
8. We worry a lot about world problems and feel helpless to do anything about them.

This chapter seeks to give the educator some ideas as to how to accelerate the curriculum, in an appropriate manner, for fast learners.



What is Accelerated Learning?

Accelerated learning is being flexible and giving students school work that is in keeping with their abilities, without regard to age or grade. These students are allowed to progress throughout the curriculum at a more advanced rate than normal by grade advancement, specific subject acceleration, honors classes, advanced placement classes, and early college entrance.

Content differentiation is achieved by acceleration of knowledge and/or life skills that correlate with the student's mental rather than chronological age, complement the student's interest, and/or satisfy the student's quest for advanced or complex information.

For Whom is Accelerated Learning?

If a student's standardized test scores, particularly achievement test scores, are many grades above level or off the charts entirely, that student is a good candidate for acceleration. If a student who was previously an avid student begins to complain of boredom or starts misbehaving in school, it may be an indication that he or she needs additional challenges. However, an educator must check this situation carefully, as any student can complain of boredom or may manifest misbehavior, and other causes may be at the root of the situation. Ideally, the decision to accelerate should be reached through the child, parents, and school officials all agreeing it will serve the child well.

There are situations, in schools, that may not warrant acceleration. If a school:

1. Groups high-ability learners together for instruction a portion of the school day,
2. Allows students to work at their own ability levels regardless of age or grade,
3. Provides differentiated instruction for high-ability learners including flexible pacing,



I don't like that
sort of school . . .
where the bright
childish imagination
is utterly
discouraged . . .
where I have seen
among the pupils,
whether boys or
girls, anything but
little parrots and
small calculating
machines.

—Charles Dickens

4. Emphasizes and teaches critical thinking, creative thinking, and research skills, then acceleration may not be needed.

However, if a student experiences:

1. Months or years in school where he/she learns nothing new,
2. Cooperative learning groups where the student is forced to teach or tutor other students because the student already knows the material,
3. A rigid classroom environment where he/she must stay with the group despite having mastered the material on her own,
4. A school where programs for the gifted and talented have been eliminated, then one alternative is to accelerate the curriculum for this student.

Curriculum acceleration may be the only way for an educator to meet the educational needs of a high-ability learner, prevent academic underachievement, and prevent behavior problems caused by boredom, frustration, and anger.

Inappropriate Uses of Acceleration

Students in an accelerated curriculum should not be expected to teach themselves. Acceleration works well when there is a linear sequence of instruction, skills or knowledge; but linearity does not characterize all of the core curriculum.

Acceleration should be used judiciously, with attention to the nature of the curriculum and to the student. Rapid advancement through a curriculum that is weak in content, skills-based, and oriented to produce a single right answer to every question will only frustrate the high-ability learner. A rich core curriculum, on the other hand, provides challenging and appropriate opportunities for study, alternate assignments, and flexible grouping strategies. Such opportunities can lead to more efficient and effective pacing.



Forms of Acceleration

The following points must be taken into consideration when considering certain forms of acceleration.

Honors classes specifically for high-ability learners replicate other course offerings, but offer curriculum that has been differentiated to meet the academic needs of high-ability students. Instructional resources include a variety of options and tend not to rely entirely on the course textbook. The following should be considered when employing this format:

- This prototype is most successful if it is built onto an existing honors program. If the program for high-ability learners is the honors program, public relations problems can exist.
- When assigning grade points to this class, it is suggested that districts offer no more points than they would a regular honors class. The course is not designed to offer more of the same that is offered in a traditional honors class, but is differentiated to meet specific learner needs.
- Smaller districts may employ this model by offering it as a multi-age group course. Students, as an example, in grades 9-12, might be grouped together in social studies, one year taking world history, the next U.S. history and so on.

Concurrent enrollment in colleges and/or universities have several different forms. More and more community colleges and universities are working with school districts to develop courses specifically for high-ability high school students. The course is offered at either the college or in the district. Another form of concurrent enrollment occurs when high school students in a district enroll in a regular college course, go to the college and attend classes with the college students, and are assigned a grade for the class and given college credit for their efforts. Some things need to be considered when using these arrangements.

- Requirements relating to high school credit for college courses are included as part of school policy. Districts should carefully review this section before implementing this prototype.



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- Approval to take college courses for high-school credit toward graduation requirements must be received from the high school principal or designated school official before the student enrolls in the class.
 - College and university instructors may not have had training on the needs and characteristics of high-ability learners.
 - Districts should provide activities that enable high-ability learners to interact with one another.

Specific guidelines for implementation of acceleration should be considered. The following is a list of considerations that must be carefully determined.

1. A comprehensive evaluation of the student's academic skill level, intellectual functioning, and socio-emotional adjustment should be made by a psychologist.
2. The student should have an IQ of 125 or greater or have an above-average level of mental development for the target grade level.
3. The student should be able to perform on above-average skills tests for the target grade level before being grade advanced. Students who are advanced in a single subject area should be permitted to work at the higher level for that subject. Students who are deficient in only one area may be grade-advanced provided that tutoring is available in that area.
4. Care should be taken to insure that adjustment problems, if they exist, will not be exacerbated by the grade advancement. Counseling should be made available to students and their parents/guardians to help with any adjustment difficulties that may arise.
5. Physical size is not important but physical and emotional health are. It is not necessary that a child be held back due to smallness of stature relative to the other students in the target grade.



-
6. The psychological assessment should include a determination of the parents' and child's attitudes toward acceleration. No student should be accelerated against his/her wishes.
 7. The receiving teacher(s) should be agreeable to the acceleration and be willing to help the child adjust to the new situation.
 8. The behavior of precocious students is often misinterpreted by teachers and administrators as socio-emotional immaturity. Misbehavior in the precocious child may be due to frustration, dissatisfaction with an inappropriate instructional environment, or boredom. Judgments about the child's readiness for the higher grade level (relative maturity and developmental level) should include input from the parents/guardians and the psychologist, as well as the teacher and administrator.
 9. The beginning of a new school year is a natural transition point for implementing grade advancement. Midyear acceleration, however, may be just as successful provided that it is made at a logical stopping/starting point in the curriculum (e.g., just before the start of the Spring grading period.) Other logical transition points include: kindergarten to second grade, skipping the last year of elementary school or middle school, and entering college after the junior year of high school.
 10. Grade advancement should be implemented on a trial basis and the child should be aware that if it does not go well he/she may request to return to the lower grade. A trial period of about six weeks is usually more than enough. Counseling services should be made available to both the student and teacher during this trial period.
 11. Avoid building up excessive expectations for the grade advancement. Students should not be pressured or made to feel they are failures if the grade advancement does not work well. Realistic expectations are the key to success. Some very precocious or academically advanced students may still be bored in school even after the grade advancement. Additional grade advancements may be necessary in years to come.



-
12. Grade advancement decisions should be based upon factual evidence and information rather than upon anecdotal reports of successes or failures. The research on acceleration of high-ability students shows that adjustment problems, if they occur, tend to be minor and temporary in nature. The research also shows that concerns regarding possible negative effects of grade advancement upon social or emotional development are unfounded.

When academic issues are considered, the plan should stress acceleration of the curriculum, plus enrichment in the areas of interest. Modifications to the curriculum for high-ability learners involve a three-step process.

1. Credit is given for prior learning.
2. There is a reduction (compacting) of tasks and/or replacement of regular tasks with a more challenging study.
3. New experiences or activities are constructed and these activities capitalize on the student's strength.

With a differentiated curriculum-based program, mastery of the learner goals in a content area is considered a basic educational requirement. The natural extension for enrichment of these outcomes is necessary because of early mastery by the student as compared to age and grade peers.

Prior knowledge of a topic must be considered when planning for acceleration. The following are guidelines to consider when assessing prior knowledge.

- Assess prior learning using formalized tests, observations, or evaluation of student products.
- Depend on the established curriculum with defined objectives and assessments.
- Give students an opportunity to review the objectives and practice the skills to be tested.



-
- Set competency expectations at an agreed upon level (often 80%).
 - Manage more easily by units or small sections during the early years of schooling and by courses or semesters during high school.
 - Ensure the practice with a Board of Education policy.

Teacher, Student and Parent/Guardian Issues

A student who has been accelerated may find that he or she is no longer the best in the class. Both parents/guardians and the student should be ready for this. Parents/guardians should be supportive, but never put undue pressure on the high-ability learner to perform, certainly not when he or she is adjusting to a new environment. The decision to academically accelerate a student may be reversed at any time if it appears not to be working for the student, academically, socially, or emotionally. Adults should help students in this situation understand that the change is not failure.

Summary

Addressing instructional strategies and practices that specifically benefit talented and high-ability learners is a challenge. Educators agree that all students have unique learning needs and talents. Ideally, we wish to design and deliver instruction that will enable every student to reach full potential; however, this becomes more complicated in times when schools are attempting to provide equitable education to increasingly diverse learners, while resources are shrinking.

The instructional practices described in this chapter exemplify strategies that will benefit not only talented learners, but all students. Accelerated learning basically takes learning from its current level to an advanced level; this outcome of academic achievement is what we desire for every student in our state. The key to such success is to provide educators with sufficient professional development opportunities, which help them offer meaningful instruction to students with a wide range of academic abilities including those with disabilities, high-ability learners, and culturally and linguistically diverse backgrounds. Furthermore, educators need sufficient time to



collaborate with each other to share expertise, develop innovative curricula, and reflect upon their professional growth.

Only in conjunction with comprehensive school improvement processes that nurture individual teacher growth can instruction be improved. While high-ability learners in some schools will have an opportunity to be in specialized programming for portions of the school day, general education teachers are ultimately responsible for those students for most of the day. Teachers need to provide instruction that will meet the needs of several ability levels at one time, accommodate a variety of interest areas, and enable students to integrate their learning.



Eleven Forms of Accelerative Practice

Description:	Results:
Early Entrance to School: a gifted child who shows readiness to perform schoolwork enters kindergarten or first grade one to two years earlier than usual beginning age.	Relatively safe accelerative option for bright children.
Grade Skipping: a learner is double-promoted to bypass one or more grade levels.	Very beneficial; greatest academic and social effects appear to be in grades 3-6.
Nongraded Classroom: a learner is placed in a classroom undifferentiated by grade levels where he or she works through the curricular materials at a pace appropriate to individual ability and motivational level.	Substantial, positive academic gains shown at the elementary grade levels.
Curriculum Compacting: the regular curriculum of any or all subjects is tailored to the specific gaps, deficiencies, and strengths of an individual student. The learner tests out or bypasses previously mastered skills and content, focusing only on mastery of deficient areas, thus moving more rapidly through the curriculum.	Significantly positive academic effects, especially in mathematics.
Grade Telescoping: a student's progress is reorganized through junior or high school to shorten the time by one year. Hence junior high may require two years instead of three, or high school may require three years instead of four.	Very Positive Academic outcomes for both junior and senior high students.
Concurrent Enrollment: a student attends classes in one or more than one building level during the school year, for example, high school for part of the day and junior high for the remainder.	No general improvement in academic achievement or social adjustment, despite substantial gains in psychological adjustment.
Subject Acceleration: a student bypasses the usual progression of skills and content majority in one subject where great advancement or proficiency has been observed. The learner will progress at the regular instructional pace through the remaining subject areas.	In mathematics, resulted in significant positive academic increases for both elementary and secondary students.
Advanced Placement: a student takes courses with advanced or accelerated content usually at the secondary level in order to test out of or receive credit for completion of college level coursework. Although one such program is usually designated Advanced Placement, several such programs exist, for example, International Baccalaureate.	Research did not support significant outcome changes for students once they entered college full time.
Mentorship: a student is placed with a subject matter expert or professional to further a specific interest or proficiency, which cannot be provided within the regular educational setting.	Showed only small positive academic and adjustment benefits for bright high school students.
Credit by Examination: through successful completion of tests, a student is allowed to receive a specific number of college credits upon entrance to college. (Advanced Placement and the College Level Examination Program are two examples). Early Admission to college: a student enters college as a full-time student without completing high school.	Strong relationship between testing out of college courses and subsequent college performance in those subject areas. Concern for high school student who opts for early admission not completing a high school diploma.



Chapter 5

Cooperative Learning and Flexible Grouping

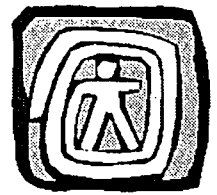
Introduction

The Aesop fable in which the father had sons who refused to cooperate and would argue among themselves remains a staple in our Western Literature. The father of this fable, in order to demonstrate one of life's lessons, took them aside one day and showed them how easily he could break a single stick. Then gathering up a group of sticks, he tried with all his strength to break the group. He could not. His sons learned that the group is stronger than any single individual. It was probably only one of many lessons for those brothers. The brothers, if they were truly to become a cooperative unit, must have learned how to cooperate and experience the joys and benefits of growing and developing as solid contributing members of their society. Educators are like the parent character of Aesop's tale. They prepare students to enter society as cooperative, productive citizens.

Research on Grouping Strategies for High-Ability Students

The issue of grouping students according to academic ability has always been a difficult, frustrating one. The vast majority of classrooms in Nebraska today are not ability grouped despite some research indicating that full-time ability grouping produces substantial academic gains for high-ability learners (Rogers). High-ability learners often mix with those of average and even lower abilities. Many schools in Nebraska are small. These schools mainstream high-ability learners. Since students are grouped heterogeneously, teachers must employ methods that reach students of all abilities.

Recent trends in education eliminate grouping by ability and utilize mixed-ability classes in which whole group instruction and flexible grouping are the major instructional delivery systems. Research indicates that academic gains can be achieved in these situations provided that the instruction is differentiated. If enrichment and acceleration are woven into the instruction, substantial gains can be made for high-ability students. Hopefully, for larger Nebraska school districts, this does not mean the elimination of accelerated classes such as "Honors" courses, "Advanced Placement" courses, or enrichment programs.



It is not the grouping strategy itself that causes academic gains; rather it's what goes on in the groups.

—Karen Rogers, 1991

The general research base on cooperative learning is extensive, but the research base studying high-ability learners in cooperative groups is much more limited. Very few studies have been conducted with identified high-ability students.

The viewpoints of researchers of high-ability learners in cooperative groups seem to be mixed, but actually many similar praiseworthy statements are made by both opponents and proponents of cooperative learning. The research indicates that cooperative learning is effective in most school subjects, but a continuing controversy exists concerning its use with the academically talented. Rogers (1991) notes that cooperative learning in mixed-ability groups for regular instruction cannot be shown to be academically beneficial for gifted and talented learners. However, Rogers' research primarily tested traditional cooperative groups in schools that did not offer enrichment and accelerated programs in addition to regular classroom instruction. Winebrenner (1992) lauds cooperative learning under certain conditions for high-ability learners. Even Rogers acknowledges that the "certain conditions" may include individual accountability in cooperative groups as positively affecting academic achievement of students. When cooperative groups are used in addition to enrichment and acceleration, substantial academic gains are achieved by all learners, especially those of high-ability.

Although Rogers sees academic gains for high-ability learners given certain curricular conditions, she cites the 1990 research of Vaughn which indicates the greatest gains are seen in ability grouping for enrichment, even if it is only a pullout program. Substantial academic gains are noted in general achievement, critical thinking, and creativity. These enrichment pullout programs also showed slight positive increases in the students' self-esteem and positive attitude toward the subject.

Robinson (1991) states that ". . . [i]f students are organized in cooperative groups studying grade level material for the majority of their school day at the pace of a heterogeneous group, their opportunity to master advanced material at their own pace is restricted." Conversely, if teachers present a challenging unit of lessons to these high-ability learners, they will learn. "To restrict access to appropriately advanced curriculum and to retard the rate at which



Tell me and I'll
forget. Show me
and I may not
remember. Involve
me and I will
understand.

—Native American
Saying

academically talented students move through that curriculum by organizing instruction in grade level cooperative learning groups for the majority of the school day is not defensible and may result in boredom and repetition for these students” (Robinson). This type of instruction also creates the “free-rider,” that student who sits back and lets the leader answer all the questions. Cooperative learning groups must be structured in such a way to allow all members of the group to contribute to the common goal.

More learning success occurs in structured groups for all students because students learn more when they are active participants. They retain less when they are the passive recipients of teacher-driven instruction. This is especially true for high-ability learners. Educators are essentially training students to enter the work place as productive citizens, and cooperative learning skills meet these demands of the adult world. As Susan Winebrenner notes, “Many researchers, such as Roger and David Johnson and Robert Slavin, contend that all students, regardless of their ability, realize achievement gains from participating in heterogeneous cooperative learning groups.” High-ability students do not suffer, rather they understand concepts better because they are actively involved with the concepts and vocalizing their understanding to others. In the traditional learning group, however, high-ability students will gain little and perhaps lose much. If the learning task requires drill and practice, it’s highly likely that the high-ability learner of a heterogeneous cooperative group will spend most of his/her time in boredom, tutoring others. **Cooperative learning does not set up students as teachers.** The student’s primary role is that of an active learner. Teachers should be empowered to create appropriate cooperative learning experiences for high-ability learners.

Barbara Clark (1983) also notes the most effective strategy for high-ability students is small groups or paired students when the groups are formed by the teacher and centered around the needs and/or interests of students. Research indicates that when students are grouped according to their needs, student motivation and achievement are higher.

Carol Ann Tomlinson’s research in middle schools shows that all students can benefit from differentiated instruction. In classes where teachers differentiate instruction, flexible groups are formed and reformed according to student interests, needs, and readiness levels.



The mind is not a vessel to be filled,
it is a fire to be kindled.

—Plutarch

The conditions must be adjusted so that high-ability learners can benefit optimally from cooperative learning. Sometimes high-ability learners can be placed in their own cooperative learning group. Winebrenner notes that “[w]hen highly gifted students are removed from heterogeneous cooperative learning groups and placed together in their own group with an appropriately challenging task, their experience with cooperative learning is much more satisfying than when they are forced to tutor other students in heterogeneous groups.” These students should work on more difficult tasks. “If we want gifted students to learn how to cooperate, we must make sure that they are working on tasks difficult enough to create a need for cooperation. The kids themselves must perceive that cooperation is necessary. Difficult tasks can inspire such a perception” (Winebrenner, 1992).

Some researchers argue that when high-ability learners are removed from the regular classroom, role models are absent. They disregard the majority of research that indicates that if students are to form role models, there cannot be too much difference in their abilities. The idea that lower-ability students will look up to those with higher abilities as role models is highly unlikely. Students typically model their behavior after the behavior of other children of similar ability who are coping well with school. Shunk noted in his research that students of low and average ability do not model themselves on fast learners. Allan cites Feldhusen’s research which indicates that “watching someone of similar ability succeed at a task raises the observer’s feelings of efficiency and motivates them to try the task.” Students gain most from watching someone of similar ability improve after effort. They do not learn nearly as well by watching someone who has already attained mastery.

Balance and variety are keys to structuring unit lessons. As Roger and David Johnson note, “There are times when gifted students should work in cooperative learning groups; there are times when they should work with each other, and there are times when they should work alone” (Winebrenner). Cohen, Bellanca, and Fogarty also believe it appropriate for certain high-ability students to work alone part of the time. Students seek cooperation when they need assistance. They prefer to work alone on tasks that they can perform easily without help. Teachers should be sensitive to students’ needs; they should be fully cognizant of their abilities. A key to teachers’ lessons, of course,



is a balance of different activities administered at appropriate times to maximize each student's education.

A teacher should assess the type of cooperative learning task or activity that has been assigned. For most drill and practice exercises, high-ability students should be grouped together with a more advanced task. For example, if students are practicing math, high-ability students could be writing their own word problems using the skills the others are solving. For tasks involving advanced critical thinking, high-ability learners can be grouped heterogeneously. Content which is new for everyone is a good opportunity to group heterogeneously. Content which is open-ended and requires many viewpoints with many possible answers also works well with mixed groups.

Winebrenner asks teachers to answer these questions before grouping students:

1. Does the task require input from different types of learning styles and different perspectives?
2. Is the subject matter new for all students?
3. Is it likely that high-ability learners will be engaged in real learning, rather than continuous tutoring?

A "yes" response to all three questions should indicate a heterogeneous grouping. If the teacher answers "no" to one or more, the teacher should separate the high-ability students from the rest of the class and give the high-ability group more challenging, enriching activities.

Teachers should also be conscious of forming heterogeneous groups that represent a cross-section of the school population in terms of gender, ethnic, and cultural backgrounds. Teachers are expected to monitor groups closely, observing and assessing carefully so that adjustments can be made, if necessary.

Recommendations for Using Cooperative Learning With High-Ability Learners

The following recommendations are proposed by many educators, most specifically Ann Robinson, Karen Rogers and Susan Allan. They are based on analysis of various cooperative learning models and



prescribed according to educational practices that are effective with high-ability students.

1. When schools cannot support a full-time gifted program, (whether for demographic, economical, or philosophical reasons) schools should consider cluster grouping small numbers of students who are intellectually gifted or gifted in a similar academic domain in base groups within an otherwise heterogeneously grouped classroom. Ideally, a “cluster teacher,” trained to work with high-ability learners, should be available to guide students.
2. Cooperative Learning in the heterogeneous classroom should not be substituted for specialized programs and services for academically talented students.
3. If a school is committed to cooperative learning, models that encourage access to materials beyond grade level are preferable for academically talented students.
4. If a school is committed to cooperative learning, models that permit flexible pacing are preferable for academically talented students.
5. If a school is committed to cooperative learning, student achievement disparities within the group should not be too great.
6. Academically talented students should be provided with opportunities for autonomy and individual pursuits during the school day.
7. If high-ability learners are mainstreamed, schools should insure that differentiated, accelerated, and compacted materials are made available for these students.
8. High-ability students show positive academic effects from some forms of homogenous grouping. The strongest positive academic effects of grouping for high-ability students result from either acceleration or classes that are specially designed for the gifted and use specially trained teachers and differentiated curriculum and methods. In fact, all students, whether grouped or not, should



be experiencing a curriculum geared to their learning styles and ability levels.

Anatomy of a Generic Lesson

The following material is a step-by-step guide for teachers who wish to construct a cooperative learning exercise with high-ability learners. Consider cooperative learning as a combination of subject matter and social skills. Mastery of both are the two major objectives.

Cooperative Learning is essentially a ladder with six rungs:

STEP SIX:	Processing the Subject Matter
STEP FIVE:	Processing the Social Skill
STEP FOUR:	Observing and Collecting Data
STEP THREE:	Working Cooperatively in Groups
STEP TWO:	Assigning a Social Skill
STEP ONE:	Assigning the Subject Matter

A Look at Step One: Assign a Subject Matter Objective

This step of the lesson describes to the students what the teacher wants each group to accomplish. Teachers state their directions specifically. They are often written down, distributed to each student, or on display for all groups to review.

1. The teacher should announce the subject matter objective, noting that the students will be working cooperatively in small groups.

Often the teacher begins by stating, "Your group will be working"

2. The teacher reveals the subject matter directions and reviews them aloud. Visual prompts are, again, strongly encouraged.



-
3. The teacher announces the criteria and how the groups will be held accountable.

A Look at Step Two: Assign a Social Skill Objective

1. The teacher announces the social skill and writes it down. Social skills help students work in groups and function in the outside world. Students don't always come to school with highly developed cooperative skills. Research indicates that many high-ability learners are especially lacking in essential social skills because they have tendencies to isolate themselves from other learners and to perform tasks individually. Social skills must be taught, modeled, practiced, processed, and practiced again in order for them to become habitual and spontaneous.

The following is only a partial list of social skills. Teachers are encouraged to decide what the students need to develop.

- ⇒ encouraging yourself
- ⇒ using names
- ⇒ taking turns
- ⇒ showing appreciation
- ⇒ disagreeing politely
- ⇒ responding to ideas
- ⇒ saying nice things
- ⇒ inviting participation
- ⇒ checking for agreement
- ⇒ staying in own space
- ⇒ staying on task
- ⇒ contributing ideas
- ⇒ checking for understanding
- ⇒ helping without giving the answer

The teacher assigns one skill if it's a new one for students. The teacher assigns two skills if reinforcing one already taught and introducing a new one.

2. The teacher builds the need for a social skill by generating people-centered reasons why group members would want to use it. The teacher asks, "What is it like in groups where people use



this skill?” “What is it like in groups where people don’t use this skill?” The teacher asks how each situation feels for students.

3. The teacher asks the class what they might see from a group that was practicing the assigned social skill. The teacher obtains specific examples from students. The group may need to be primed by the teacher at first. He/She can say, “When groups are really actively listening, I see each person looking at the speaker. What other things would you see if a group were actively listening?”
4. The teacher asks the class what they might hear from a group that was practicing the assigned social skill. The teacher again obtains specific examples from the students. The group may again need to be prompted. The teacher can say, “I might hear a student say ‘Yes, that’s right!’ when that student is listening actively. What other things would you hear in a group that was practicing active listening?”

A Look at Step Three: Students Work in Groups

1. Flexible groups are formed. Groups change frequently.
2. The teacher designates a meeting area for each group.
3. The teacher displays a starting time and a finishing time so it is visible to all groups.
4. Students create positive interdependence by creating a single product. They should be individually held accountable.

A Look at Step Four: The Teacher Observes and Collects Data

1. The teacher develops and uses an observation form. An example of one follows these instructions.
2. The teacher sits or stands close enough to groups in order to hear and see, yet not so close as to become a part of the group. The teacher avoids eye contact with students in order to remain inconspicuous and objective.



Cooperative Learning Lesson Design Form

1. Subject Matter Objective:

Given cooperative groups, the students will:

Directions for the board, easel, or overhead:

The criteria (how groups will be held accountable):

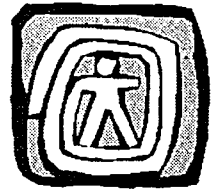
2. Social Skill Objective:

3. Group Work

Group Size: _____

Group Formation:

Teacher selected
Homogeneous
Heterogeneous
Random
Student selected
Interest-based
Readiness-based



Students can be asked simpler “yes” or “no” questions.

“Were my contributions appreciated today?”

“Was disagreement done politely?”

3. Group reporters share responses with the entire class. New behaviors can be added to the social skill list.
4. The teacher gives feedback to the students.
5. The students react in groups to the feedback.
6. The teacher allows time for a total group discussion.

A Look at Step Six: Process the Subject Matter

1. The teachers determines if groups met the established criteria.
2. The reporters respond in turn to questions, sharing answers, learning techniques, and relevant information.
3. The group members honor each other for their efforts.

The following is a lesson design form which can be photocopied.



3. The teacher takes notes concerning which skills might be appropriate in the future.
4. The teacher announces when time is up. Reminders are not given. Time is extended if necessary.

A Look at Step Five: Process the Social Skill

1. The teacher selects a social skill processing method, writes it on the board or overhead, and reviews it verbally with the students.

Many methods exist for processing the social skill:

- ⇒ graphing responses on a scale from one to ten
- ⇒ answering true/false questions
- ⇒ answering multiple choice questions
- ⇒ answering fill-in-the blank questions

2. Students respond to the following questions:

“I felt _____ when someone in my group said or did _____.”

“Other places where it is important to use this social skill are _____, _____, and _____.”

“One way we could use this social skill better next time is to _____.”

“Today we practiced this social skill by _____.”

“We could have done more with this social skill by _____.”

“A goal I have for next time with this social skill is to _____.”



4. Observation and Collection of Data

Directions for observation:

5. Processing the Social Skill

Direct students to complete the following:

We did well on

I knew people in my group were using the social skill when I saw and heard them

One thing I learned or relearned about working in a group is



6. Processing the Subject Matter

Check (or fill in) which is applicable:

Group Reports

Reporters Share Answers Verbally

Total Group Discussion

EVALUATION:



Cooperative Learning Observation Form

Lesson: _____ Date: _____

Class: _____ Observer: _____

Assigned Skill: _____

What I Saw

What I Heard

OTHER OBSERVATIONS:

MISCELLANEOUS NOTES:



Conclusion

Research indicates that cooperative learning, if handled properly by a skillful teacher, enhances the learning of high-ability students. It is but one tool of many which research deems effective.

I am not a teacher, I
am an awakener.

—Robert Frost

It can no more be contended that one teaching method should be uniquely effective for the gifted than that one is universally effective with all children. Whatever aspect or component of any teaching method is effective must be recognized as varying from teacher to teacher, from child to child, from time to time, from learning area to learning area, and from one social milieu to another. If there be a dominant crucial variable, it is the teacher—and, particularly for the gifted, the teacher must be broadly substantively competent, emotionally secure, insatiably curious, equally capable of working with individual students and with groups of children, and fully socially sensitive (Newland).

Teachers are encouraged to start slowly and build a single lesson from their entire curriculum first, one which they think fits well into cooperative learning. Teachers should allow cooperative learning to evolve slowly as they work with high-ability students. It was never intended to become a part of every class from the first day of instruction, nor to be the only instructional strategy used in a classroom.

Flexible grouping allows teachers to differentiate instruction in mixed-ability classrooms. All students learn the concepts that are important for each unit of instruction, but groups of students learn about the concept in different ways. The Planning Model for Academic Diversity and Talent Development, which follows, demonstrates how instructional activities can be fine tuned for each student. Cooperative learning and flexible grouping are strategies that Nebraska schools can use to prepare students, including those with high abilities, to interact effectively in cooperative settings.

A Planning Model for Academic Diversity & Talent Development Flexible Grouping

Escalating Expectations

Content	Process	Product
<p>Concept & Generalization-Based High Relevance Coherent Transferable Powerful Authentic</p> <p><i>Differentiation Through:</i> Multiple Texts & Supplementary Print Resources Varied Computer Programs Varied Audio-Visuals Varied Support Mechanisms Varied Time Allotments Interest Centers Contracts Compacting Triarchic-Based Orientation Complex Instruction Group Investigation Etc.</p>	<p>Concept and Generalization Driven Focused High Level Purposeful Balancing Critical & Creative Thought Promoting Cognition & Metacognition</p> <p><i>Differentiation Through:</i> Tiered Assignments Learning Centers Triarchic Model Assignments Multiple Intelligence Assignments Graphic Organizers Simulation Learning Logs Concept Attainment Concept Development Synectics Complex Instruction Group Investigation Etc.</p>	<p>Concept/Issue Centered Skills of Planning Taught Skills of Production Taught Requires Application of all Key Skills and Understandings Uses Skills of the Discipline Real Problems/Audiences Multiple Modes of Expression <i>Differentiation Through:</i> Tiered Product Assignments Independent Study Community-Based Products Negotiated Criteria Graduated Rubrics Triarchic-Based Orientations Multiple Intelligence-Based Orientations Complex Instruction Group Investigation Etc.</p>

Active Orientation

Continual Assessment and Adaptation

C.A. Tomlinson, U.Va. 1995

- | | | |
|--|---|---|
| <p>1. Foundational Information, Ideas, Materials, Applications</p> <p>2. Concrete Representations, Ideas, Applications, Materials</p> <p>3. Simple Resources, Research, Issues, Problems, Skills, Goals</p> <p>4. Fewer Facets Disciplinary Connections, Directions, Stages of Development</p> | <p>5. Smaller Leap Transformational</p> <p>6. More Structured Abstract</p> <p>7. Clearly Defined Problems Complex</p> <p>8. Less Independence Multi-Facets</p> <p>9. Slower</p> | <p>Greater Leap Applications, Insight Transfer</p> <p>More Open Solutions, Decisions, Approaches</p> <p>Fuzzy Problems In Process, In Research, In Products</p> <p>Greater Independence Planning, Designing, Monitoring</p> <p>Quicker Pace of Study, Pace of Thought</p> |
|--|---|---|

From: "Identification, Ideas, & Issues in Gifted Education/Gifted Learners in the Regular Classroom," by Carol A. Tomlinson, Ed. D., University of Virginia, Charlottesville, VA, 22903, presented at the Nebraska Association for the Gifted Conference, Feb. 27, 1997.

Grouping: The use of flexible organizational patterns to achieve specific goals in the classroom; teaching students as a class, in heterogeneous and homogeneous groups, in pairs, and individually.

WHAT THE RESEARCH SAYS

"The most appropriate grouping pattern for each instructional experience can only be determined by analyzing student strengths and needs and matching this information with the choices available to the teacher and student." (Lapp, Flood, and Nagel, 1991)

Type of Group	Reason to Use	Some Sample Activities
HETEROGENEOUS	to use instructional time efficiently; to facilitate student interaction and sharing; to prevent low-ability students from always being regulated to "low" groups	mini-lessons/group instruction; group discussion that draws on different background knowledge; group activity that calls for a variety of roles and interests, such as putting on a play; tutoring
HOMOGENEOUS	to do "specialized" work; to take advantage of students having similar ability levels, work habits, prior knowledge, or interests; to give students a chance to work with friends	exploring a topic of interest; instruction in a common area of need; getting enrichment or extra help in a particular area of study
COOPERATIVE	to promote learning through interaction; to improve social skills and to promote tolerance; to combine leaders and novices	Jigsaw; Think-Pair-Share; Co-op, Co-op; Group Investigation; Numbered Heads Together; Learning Together

Adapted from A To EZ Handbook: Staff Development Guide. MACMILLAN/McGRAW-HILL School Publishing, 1993, p.77.

Group Organization	Type of Group	Some Sample Activities
WHOLE CLASS	heterogeneous	read a story; sing; choral reading; direct instruction; introduction to a new subject; class presentations; solve a classroom problem; class discussion
LARGE GROUP (7-12 STUDENTS)	heterogeneous homogeneous	divide up tasks on a research project; undertake a survey; prepare a panel discussion; design and practice performances; create projects
SMALL GROUP (3-6 STUDENTS)	heterogeneous homogeneous cooperative	practice a skill; discuss literature; tape-record a story; work in class activity centers; create a project; design and practice a "small" performance (Readers Theater, puppet show)
PAIRS (DYADS)	heterogeneous homogeneous cooperative	paired reading and writing; retell a story; tutor; exchange letters; conduct reciprocal interviews; combine skills to produce a product (writer and artist make a comic book)
INDIVIDUAL		read and write silently; complete a personal response; write in journal; teacher conference; create an illustration

Adapted from A To EZ Handbook: Staff Development Guide.
MACMILLAN/McGRAW-HILL, 1993

Specific Groups	Group Organization	Some Sample Activities
<p>NEEDS/CLINIC GROUP - a group getting enrichment or extra help in particular area of study; instruction in a common area of need (for a discussion of clinics, see glossary)</p>	<p>small/large group pairs, individual</p>	<p>review/practice strategies; direct instruction; improve social skills; designated intellectual peer group activities</p>
<p>INTEREST GROUP - a group exploring a topic of interest</p>	<p>small/large group</p>	<p>exploring a topic of interest; research; reading/ writing groups</p>
<p>EXPERT GROUP - people with a strong interest/background/ knowledge in a specific area or topic are used as a resource</p>	<p>pairs, small/large group, individual</p>	<p>sharing expertise on a particular topic; proofreading a piece</p>
<p>LITERATURE GROUP a group that meets to discuss literature</p>	<p>small/large group, whole group</p>	<p>exploring author/illustrator, genre, text set, author's craft, "Beyond the Basal"; read alouds for enjoyment</p>
<p>WRITING GROUP - a group exploring a topic of writing</p>	<p>individual, pairs, small group</p>	<p>genre study (poetry, nonfiction, biography etc); peer conferencing; content-related projects</p>
<p>GOAL GROUP- a group that is based on a selected reading/writing goal</p>	<p>small/large group</p>	<p>reading/writing activities based on a specific goal</p>
<p>MULTI-AGE GROUP - a group composed of students from a multi-age class or from different grade levels</p>	<p>whole class, small/large group, pairs</p>	<p>reading/writing buddies; research; cross-age tutoring; various reading/ writing projects</p>



Chapter 6

Mentoring

We must be the
change we wish to
see in the world.

—M. Ghandi

Mentoring can become a highly effective way to develop individual talents and interests, especially those of the high-ability learner. It has been said that in today's world of scientific inquiry, working with an accomplished mentor may, in fact, be crucial to achieving eminence.

Mentoring is not a new “buzz word” of education. The term mentor seems to have originated from Homer's epic *The Odyssey*. Before Ulysses embarked on his long adventure, he chose his wise and trusted friend Mentor to guard, guide and teach his son, Telemachus.

Mentors are experts in a field who may assist a student with his or her understanding in that area. Schools should provide training for mentors of high-ability students. Mentors can serve as role models for thinking, as a funnel for questions, as guides, advisers, counselors and friends. Mentors can provide specific, in-depth knowledge and immediate answers to questions that may arise in the time the student and mentor spend together. The communication between the mentor and student is likely to utilize higher-level thinking skills, especially divergent thinking, and assist the student in the development of analysis, synthesis and evaluation skills.

Another important aspect of mentoring is that the mentor models the nature of inquiry and involves the student in the use of tools of the discipline. Mentoring can have an important influence on career development. Information can be gained first-hand about the demands of the job, necessary preparation and training for the position, and a realistic image of the professional's role in the field.

The personal/social aspect of mentoring may be of even greater importance. Many who have been mentored have said that the emotional support gained from the experience was of the greatest importance. They were able to develop a broadening and refining of their abilities. Students were also able to learn not only the value of their abilities and desires, but also their limitations. The self-confidence that builds in the specific area in which they are working translates into self-satisfaction throughout all aspects of life. With the increased self-confidence in one's own productive abilities, the student becomes



better able to relate to others in his/her environment: family, peers, school, and community.

Obstacles

There seem to be four major obstacles involved in developing a mentoring program. The first three are common throughout education: distance, time and money. With a little creativity all three can be solved. The fourth obstacle, finding the ideal mentor, may prove to be more difficult.

Distance could be the greatest problem for our schools outside the metropolitan areas. Rural and isolated areas may not yield individuals with the needed expertise and interests. Our technological society makes this less and less a problem. Mentors have the options of communicating by computer, transmitting information by fax, utilizing regular mail or varied telephone plans. Teachers and parents interested in finding a mentor should not be hindered by the fact that there is no suitable mentor in their community.

I have found that the best way to give advice to your children is to find out what they want and then advise them to do it.

—Harry S. Truman

The obstacle of time seems to be common in our increasingly busy world. Mentorship takes a great deal of time if done correctly. First of all, it takes time to find the right mentor. The mentor may not have the time to give even if the mentor wished to, and the student may be bogged down by classes and extracurricular activities. Even a little time spent in a successful relationship is valuable; creative scheduling can help foster the relationship. Some programs allow students to work with mentors or on projects during school time. If this is not possible, the teacher or parent/guardian should work with both parties to help arrange schedules so time can be found.

Money, an ever-increasing problem for schools, may be less often a problem since mentors are almost never paid. Money may be needed for transportation or materials for projects. If the student does not have the necessary funds, community groups and parent organizations will often give grants for the small costs involved.

Possibly the greatest obstacle to overcome will be in finding the ideal mentor. Many criteria must be taken into account including location, personality, style and special interests. Ideally mentors possess a



It's common to hear a mentor described as a teacher, trainer, sponsor, developer of talent, opener of doors, positive role model, advocate, and friend.

—The Abell
Foundation
Baltimore, MD

special skill or knowledge that will foster the desired outcomes in the student. An effective mentor should possess the characteristics of patience, understanding, and encouragement. Mentors must be knowledgeable, flexible and willing to spend time with young people.

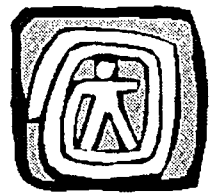
Parents/Guardians as Mentors

Parents/guardians do serve as mentors also. They are the child's first teachers and exert a tremendous influence on the development of a child's talents and interests through encouragement and teaching. They serve as mentors when they nurture interests, encourage the development of abilities and talents and support their child in reaching towards goals. Parents/guardians can mentor their child in becoming a life-long learner by asking what the child has learned rather than what grades the child has received. They encourage learning and set expectations for learning by making learning a part of virtually any activity done together.

Parents/guardians should model what they want their child to enjoy. An effective mentoring relationship is built on shared interests and concerns. A mentor/parent and child share goals and work together to reach those goals. Parents/guardians constantly act as mentors as they share knowledge and experiences, nurture interest, encourage the development of abilities and talents, and support a young person as he/she works to reach goals.

Job Shadowing

Job shadowing is another excellent method of allowing students to gain first-hand knowledge about a job/profession—the demands, preparation and training, and a realistic image of the role of a person in the specific occupation. Shadowing can serve the same purposes as mentoring, but involves less time. Depending on the professional, it can be one hour to one full day in duration. Job shadowing can lead to a mentorship program if both parties are excited about the prospects.



“SHADOWING” SIGN UP SHEET

Listed below are some of the careers you might consider when deciding on shadowing. After reviewing the list, fill out the lower portion of this page and return the entire page to _____ by _____. If you do not return this sheet, I will assume that you are not interested. If you have preferences for morning/afternoon or a certain day of the week, I will try to accommodate them but it is not always possible.

Engineer (civil, mechanical, environmental), archeologist, physical therapist, occupational therapist, nurse, respiratory therapist, radiology technician, chiropractor, pharmacist, ophthalmologist, optometrist, dermatologist, anesthetist, medical technician, psychologist, veterinarian, architect, draftsman, accountant, CPA, financial advisor, law enforcement officer, day care operator, lawyer, advertising agent, newspaper reporter, newspaper photographer, CAD operator, soil conservationist, hydrologist, travel agent, disc jockey, social worker, sign language interpreter, teacher (all areas), insurance agent, realtor, photographer, broadcaster, interior designer, and dietitian. (Doctors, possibly, if you have connections or are a senior)

If you have ideas for others, let me know and I'll do some checking.

Your name _____ Grade _____

Preferences for day/time _____

Top two career choices for shadowing

If you have some place or someone particular in mind, write the name, address, and/or phone number here

Questions? List here



THE SHADOWING EXPERIENCE

Student's Name _____

Person Shadowing _____

Address _____

Occupation _____

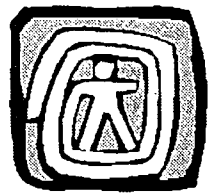
Date of Shadowing _____

You are very privileged to have the opportunity to spend time with a professional in a career field of interest. Please act in a responsible and dependable manner. If you cancel out at the last minute, you will not receive the chance to shadow again. You are to dress as you think that person will dress. If you aren't sure how to dress, ask! You are to be there on time and stay until your designated departure time (which will be arranged when we set this up). It is important that you don't act bored, so plan to take a little notebook along so that you can write down your thoughts and questions.

In order to get checked out you must bring a note from your parent and get a pre-makeup slip from the office. This is true even if you will only be gone one to two hours. Be sure to return the signed slip to the office so you will not be unexcused.

In order to prepare for this day, please write at least 10 questions that you would like this person to answer during the course of the day. I would like you to do some reading on this career in order to write good questions. The *Occupational Outlook Handbook* in the library would be one source. You must show me your list of questions before I arrange your checkout.

- 1.
- 2.
- 3.



-
- 4.
 - 5.
 - 6.
 - 7.
 - 8.
 - 9.
 - 10.

Following your experience, you are required to write a one page summary of your experience including what you learned and your impressions of that career, or come in and visit with me about what you have learned. Failure to turn this in within one week of your visit will result in forfeiture of other opportunities. Upon return from your experience, please get a thank you note from me to write a note of appreciation.

Parents:

You are asked to provide transportation for this shadowing experience or allow your son/daughter to drive themselves. By signing below, you are giving permission for your son/daughter to participate in this activity. Thank you.

Please return this portion to _____

Parent Signature _____

Date _____



Chapter 7

Social/Emotional Development

For more than 20 years our school programs and services for high-ability learners have focused on intellectual development—not surprising since this ability is what brought the children to our attention in the first place. In the rush to develop their intellectual talents we want to be sure that we don't neglect what has often distinguished them from their classmates—maturity of insight, heightened sensitivity, and emotional disparity. It is the affective domain that enables or disables the cognitive domain. If this is neglected, the child will sometimes perform at lesser and lesser levels of productivity.

While some may believe that bright students “have it made,” life can sometimes become a chore. The price for being different may be hurt feelings, social insecurity, withdrawal, or depression. From six to eight years of age, intellectual and cognitive development advances so rapidly that high-ability students are four to five years ahead of their age mates. They may receive a large amount of attention and approval from adults for their academic feats while becoming the butt of unfriendly comments from peers.

George T. Betts and Maureen Neihart of the University of Northern Colorado have developed six profiles based on the affective aspects of these students. These are shared to instill a greater awareness and insight and should not be used to *define* children and youth.

When a child has no hope, a nation has no future.

—Zell Miller

- **The Successful**—Perhaps as many as 90% of high-ability learners, these students learn well, score high, and learn to get by with as little effort as possible.
- **The Challenging**—These students are highly creative but often aren't identified because the student challenges authority and appears obstinate, tactless and sarcastic.
- **The Underground**—These are typically girls (especially in the middle grades), who deny their giftedness in order to be accepted.
- **The Dropout**—These are often students who are identified very late. They have grown angry with adults, themselves, and the



system. After developing interests outside the school curriculum, they begin to see school as irrelevant.

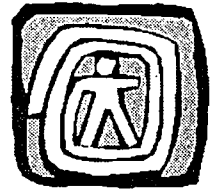
- **The Double-Labeled**—These are children who are physically, emotionally, or learning disabled (LD) and are usually not identified. They often become discouraged and frustrated.
- **Autonomous Learner**—These children are successful, risk-takers, independent, and self directed.

Ideas for Parents/Guardians:

- Listen carefully to your child.
- Accept your son/daughter as a human being with needs, dreams, tears, and laughter. Each is a unique person first, high-ability learner second.
- Be cautious about applying pressure to “do better.” Most kids put plenty of pressure on themselves already and sky-high expectations cause them to feel that adults will be disappointed if the product isn’t perfect.
- Allow and encourage more than one set of “peers.” Mental age correlates positively with mutual friendship choices.
- Find ways to support necessary emotional growth. Self discovery and acceptance are critical to high-ability learners.
- Teach planning and self-evaluation, and provide positive role models.
- Talk to other parents of high-ability learners. You are not alone.

Children may require guidance and sympathy far more than instruction.

—Anne Sullivan in “A Special Teacher”



Ideas for Teachers:

- Develop a learning environment of mutual trust and respect among individuals and a commitment to self improvement.
- Engage parental support for the student.
- Assess the level of dissonance: Find out what the students think about their present learning environment, then ask how they think it *should* be. Now you can do a better job of responding to individual needs.
- Stop displaying only a student's *best* work and refrain from sending a message that a less than perfect report card is cause for dismay. Brag about hard work and dedicated effort rather than a perfect product.
- Curricula should include learning about and discussing human emotions and personal growth as part of the study of history, eminent people, and contemporary events. Learning about inner conflicts of others helps high-ability learners see that such feelings and thoughts are normal for most people and significant accomplishment and growth may come from difficulties.
- Journaling will offer time for student reflection and exploration of personal reactions to experiences.
- Help students find worthy heroes who have overcome difficulties or excelled due to hard work and inquiry (Marie Curie, Leonardo da Vinci, Thomas Edison, Jonas Salk, Anne Frank, Florence Nightingale, Margaret Mead, Harriet Tubman, Helen Keller, Maria Tallchief, Isabel Allende).
- Emphasize the unique classroom contributions each could make (classroom resident expert, legal expert, poet laureate, Edison Scholar, space scientist, Nebraska historian).
- Share your avocations and passions.



One final idea in an effort to meet the social and emotional needs of some high-ability learners is to form “counseling groups.” These essentially are discussion groups with the focus being on personal growth and support. The leader should be a teacher who is sensitive to the needs of the gifted and is neither intimidated by them nor in awe of them. Facilitator training is essential. The training many teachers take to facilitate School and Community Intervention and Prevention Programs (SCIPP) seems to be helpful. Through this training teachers can learn basics about facilitating a group. Students will grow through their opportunities to discuss feelings and perceptions in an atmosphere of trust and understanding.

Teaching is painful,
continual and
difficult work to be
done by kindness,
by watching and by
praise, but above
all by example.

—John Ruskin

It generally works best to have groups that are somewhat homogeneous in age and a mixture of males and females. Size recommendations of counseling groups range from 8-12 in the high school to 6-8 in the elementary. Forty to sixty minutes seems to be about the right amount of time. Initial meetings might focus on the meaning of “high-ability learner,” stereotypes, advantages and disadvantages, and its effect on relationships. Later sessions could evolve around perfectionism, stress, anger, change, dealing with “the system,” or expectations. (Samples of “planning sheets” follow these pages). The facilitator should always go into the session with an idea in mind for discussion, but this is often overridden by the current needs of the students.

A common reaction from students is, “I never knew anyone else felt like that.” As the trust and intimacy grows, “weird thoughts” are normalized and students look forward to the time together .

PLANNING SHEET FOR GROUP ACTIVITIES

Go-Arounds

Allow every member of the group to participate at least once during each group meeting.

The facilitator, or another group member, picks the day's topic, gives his/her response and then passes to the person on his/her left or right. Allow only a few minutes to each person. After one has spoken, the facilitator and group may choose to respond and return to one or more members.

Possible go-around examples. Chose or invent one of your own to try.

1. Briefly share individual "high" and "low" since the last meeting.
2. Introduce yourself and share how you are feeling on a scale from one to ten, with ten being terrific.
3. Share a significant thing that happened to you this week.
4. Share an important thing you discovered about yourself this week.
5. What new risk did you take this week and what were the results?
6. Observe three minutes of silence then share what is going on inside.
7. Share a new behavior you tried this week and tell us how it worked.
8. Describe a person you feel safe with.
9. Describe a time when you listened well to someone.
10. Describe a time when someone wouldn't listen to you.
11. Talk about something that really bothers you.
12. Talk about something you knew you could do.
13. Discuss a time someone betrayed your trust.
14. Discuss a time that you observed a conflict.
15. Describe a time someone was really angry and having trouble, and you helped him/her.
16. Describe the time someone really put you down but you think you handled it well.
17. Talk about something you didn't mean to say or do that made somebody angry at you.
18. Describe the day someone took something away from you.

19. Describe the time someone you thought was funny made someone else angry.
20. Name a scent or smell you remember from childhood and tell why you remember it.
21. Name your favorite room in your house and say what you like about it.
22. Go on a fantasy to a place where you really want to be—buy a hat—and tell about your hat.
23. Give a weather report on how you are feeling.
24. If you could be a flower, what flower would you be and why?
25. What is your favorite color and why?
26. Tell the group about your favorite toy from your childhood.
27. Where is the place you most like to go to relax or just to feel comfortable?
28. You are in a hot frying pan—what are you and why?
29. When are you happy?
30. What is the sound you enjoy hearing most often and why do you like that sound?
31. If your “ship came in,” what would you want it to hold for you and why?
32. If you could be an automobile, which one would you be and why?
33. Look in the mirror and tell the group what you see (need hand mirror for this go-around).

The Real Me

The following words describe me best:

1. I am more indoor or outdoor _____
2. I am more fast or slow _____
3. I am more past or present _____
4. I am more yes or no _____
5. I am more on the ground or in the air _____
6. I am more a thinker or a doer _____

7. I am more a hamburger or a steak _____
8. I am more a leader or a follower _____
9. I am more a single tree or a forest _____
10. I am more a sports car or a Model-T _____
11. I am more a log cabin or an apartment building _____
12. I am more a frown or a smile _____
13. I am more a morning person or a night person _____
14. I am more an ear or a mouth _____
15. I am more a summer or winter _____
16. I am more chocolate or vanilla _____
17. I am more a swing or a see-saw _____
18. I am more a pencil or a pen _____
19. I am more a chair or a table _____

Adults may want to protect you from setbacks and disappointments even though ups and downs are a normal part of life. You can learn a great deal by experiencing them, dealing with them, and moving beyond them.

Identify at least three "disappointments" in your life.

What feelings accompanied these disappointments?

Generally, how have you dealt with disappointment in your life? Are certain setbacks easier to deal with? How does your family support you? Have you learned that you do survive these difficult times?

Share Session on Fears and Anxieties

Rank the following with one being what you are the most afraid of:

- _____ Breaking up with boyfriend/girlfriend
- _____ Getting a bad grade
- _____ Not making a team (or something similar)
- _____ Losing a friend
- _____ Other

My top three fears right now are:

- A. _____
- B. _____
- C. _____

I think my fears/anxieties are there because:

- A. parents have communicated them to me
- B. past experience
- C. unexplained

I most recently showed my courage by:

I deal with my fears/anxieties by:

My fears/anxieties affect my behavior by:

Complete in Spare Time

When I enter a new group, I feel _____

When I meet new people, I feel _____

When I talk with a stranger, I feel _____

When I enter a strange room, I _____

When a meeting opens, I _____

When a conversation begins, I _____

When a stranger speaks to me, I _____

When a teacher calls on me, I _____

When people first meet me they _____

When people meet me on the street they _____

When I stand up before a large group, I _____

When I'm in a new group, I feel more comfortable when _____

When I'm in a new group, I feel most helpful when _____

When I'm in a new group, I feel most clumsy when _____

What I am doing with my life is _____

What I need to learn is _____

What I am trying to teach others is _____



Chapter 8

Funding Issues

Since the release of *Nation at Risk* in 1984, public schools have been reflecting on and searching for new methods of delivering instruction to children of all ability levels. The traditional classroom lecture model has given way to cooperative strategies that place the responsibility of learning on the student. This requires the teacher to move toward being an informed guide in helping all learners become excited in seeking knowledge and information. Today, with the amount of information increasing at an alarming rate and made more readily accessible through technology, a teacher can no longer be the “expert” in any curricular area.

Some students may have survived the traditional classroom, if willing to accept a passive involvement and acquiescing to a memorization and regurgitation format. In some cases, however, students may not have been motivated in the traditional classroom and special talents or skills were never nurtured or revealed. With this failure to inspire students to be active learners and adopt a desire to be continual learners, public education may have lost some potential to positively influence future members of society. Further, students with some undeveloped and hidden talents may have been forced to accept less than fitting lifestyles. In this era of school restructuring emphasizing that students should work in teams to solve problems, develop critical thinking skills, and use advanced technology rather than depending solely on a textbook, students may become more actively involved in the teaching/learning experience. This involvement may lead to discovering student talents and helping all children understand that learning is a lifelong activity.

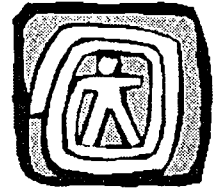
In discussing the funding of high-ability learner education, district philosophy must be the first item on the agenda. If a district pursues alternative funding without a strong belief in the potential capacity-building of each student and without a high-ability learner support system in place, then new efforts will have little chance of success. A program cannot depend on one person; no matter how dynamic. Too often successful high-ability programs have not survived after a charismatic and resourceful instructor has left the district. Also, in this time of economic stress on public schools, single or part-time



teacher programs have been the first on the budget chopping block. The entire district community including the Board of Education, parents, administrators, teachers, and students must believe in the concept of lifelong education.

All those committed to education need to understand that educators have a responsibility to be trained to meet student needs. Teaching “to the middle” is a classroom strategy that has existed since the 1800’s and was thought to be an efficient classroom tool throughout the Industrial Age of a growing America. Research has shown, however, that many students above and below the middle ground were not learning to the best of their abilities. As America moved from the industrial to the informational era, the focus for educational preparation changed from workers being required to perform basic tasks in a factory setting, to being asked to think critically as an integral part of a company structure. Yet, many classrooms across the nation are still operating as if there was no change in the business environment; the factory concept remains strong in schools. Districts need to face the issue of how information is distributed to children and to commit time and resources to the task of restructuring the classroom and teaching methodology to focus on the academic needs of each child.

Funding for high-ability learning programs would not be a concern in a district attempting to meet the learning needs of each student since all teaching would be geared to discovering the most appropriate learning style of every student. However, a district should be careful to protect specific funding for gifted education. The level of district commitment, measured in financial and human resources, needs to be focused on the diversity of individual learners. The staff, administration, and parents require training on how to serve the high-ability learner, and a local facilitator or resource staff person should be available to assist the classroom teacher in developing and administering relevant services for these students. This type of training requires funding, a well-equipped library, and technology to provide the staff with tools to help high-ability learners.



In an article by Debra Viadero published in the March 18, 1992 edition of *Education Week* entitled "Budget Cutters, School Reformers Taking Aim at Gifted Education," the need for reviewing classroom methodologies and district commitment to the individual child is reinforced:

Some educational reforms have called for schools to move away from the traditional academic practice of grouping students according to their ability in favor of more heterogeneous classrooms settings. And that trend, advocates for gifted education say, along with such other reform-minded innovations as site-based management and cooperative learning, has put some traditional gifted-education programs in jeopardy.

'We believe that the field of education for the gifted and talented is currently facing a quiet crisis,' two researchers in the field, Joseph S. Renzulli and Sally M. Reis, wrote in a recent paper, 'and that this crisis is directly related to the educational-reform movement in America.'

In many states, "pull-out" gifted education programs have not met with support of all faculty members. Students often miss out on classroom activities and, due to being separated from their classmates, high-ability students sometimes endure teasing by their classmates. Often, teachers say that high-ability learners do not need extra attention since they will succeed in the classroom without additional services. This is a myth.

Teachers need training in meeting the needs and guiding the learning of high-ability learners. Typically, when a high-ability learner enters high school, there are more extracurricular activities in which to participate, allowing districts to serve these students with still other traditional services. Many districts have adopted advanced placement programs at the high school and have directed higher-ability students to enroll in them. These advanced courses are helpful in creating more curricular options for all students, but if taught with traditional lecture methodology, the high-ability learner may not be challenged.



When school budgets are tightened, gifted programs have historically been dropped; especially when state legislatures decide to discontinue funding the category of gifted education. School communities should provide services for high-ability learners based on their beliefs and not depend on outside sources of funding that are unpredictable. In the 1980s, special education, which is a category not always thought to include gifted students, was changing as a result of a national push for inclusion of special needs students into the regular classroom environment. This trend was supported by many parents of environmentally, academically, and physically challenged students. It was based, to some extent, on parents' desire to have their children involved in the regular classroom for better peer acceptance and scholastic benefits. Some districts adopted the "inclusion" strategy for principally financial reasons. Urban districts were able to close centralized special education attendance centers and reduce the number of special education teachers. However, districts quickly discovered a flaw in the strategy; the regular education teachers were not trained to properly serve handicapped students. Many teacher unions brought inclusion to the negotiating table in an effort to stop the practice from continuing. High-ability learners should not be dealt with in the same manner under an illusion of school reform initiatives. **Faculty and staff training on how to serve the individual learner is critically important and these services require adequate funding.**

Gail Hanninen's 1994 article in the *ERIC Digest* entitled "Blending Gifted Education and School Reform" may be helpful in assisting districts in creating belief statements:

Belief statements define systemic parameters as reflected in a district's vision statement and expected outcomes. For example, what is believed about students who are gifted is based on what is believed about all learners. Creating belief statements about all learners is guided by the following questions:

1. What do we believe (about all learners)?
2. What do we know?
3. What do we want?
4. What do we do?



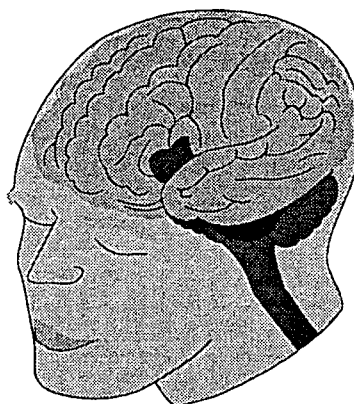
Processing these questions generates a set of district- or school-level belief statements, vision statements, and expected outcomes that will affect the entire community. Discussion should include educators and parents of students who are gifted and talented as well as other representatives from various special interest groups. By working individually, in small groups or as a whole, each person generates belief statements. The general discussion provides an opportunity to examine beliefs individuals hold about students who are gifted and talented. Through a process of narrowing down the statements, each small group lists five most strongly held statements. Later, when groups combine their statements, a list of ten to 15 strongly held belief statements provides an organizational profile. A second list of belief statements may also be generated around the question, 'What do you believe about programs for students who are high-ability learners?'

The crucial point in establishing a funding source for high-ability learner services is to start with a district or community philosophy. Input into the philosophy must come from all stakeholders in the district, including those who do not have children in school since a quality education is important for the future of the community. Community meetings sometimes uncover conflicting viewpoints. Yet, it may be the conflicting viewpoints that inspire a new creative vision that may serve to benefit learners and the district for years to come. Following the adoption of a philosophy or vision for high-ability learner services, specific goals should be established along with a timeline targeted to meet the intent of the goals. Once the Board of Education has adopted the vision and the administration has developed a timeline for meeting the agreed-upon goals, the necessary funding will follow.



Chapter 9 Staff Development

CAN INTELLIGENCE BE ENHANCED AND AMPLIFIED ?



This question is addressed in David Lazear's *SEVEN WAYS OF TEACHING*. New ways of looking at intelligence have erased the view that intelligence is a fixed and static entity. Studies from Dr. Howard Gardner and his team of Harvard researchers involved in Project Zero have discovered that there are many forms of intelligence. The seven intelligences proposed by Gardner go beyond traditional methods of measuring intelligence.

Current and ongoing brain research has also unlocked many of the mysteries of learning.* Israeli psychologist and researcher, Dr. Reuven Feuerstein, along with others, suggest *at any age, and at almost any ability level, one's mental functioning can be improved. We can, apparently, all learn to be more intelligent by consciously activating perception and knowing on more levels than we usually use!*

* *SEVEN WAYS OF TEACHING*, David Lazear, Skylight Publishing, Palatine, Illinois.



Teachers as Learners

Teachers are the key to success in our vision of excellent education. They must be prepared to work with advanced materials and to use complex teaching strategies with a variety of students. Teaching materials appropriate for use with talented students must also be developed.

Without the understanding of the staff and the administration, even the best program will be short lived. It is therefore essential that these people be aware of the needs of high-ability students and be a part of the development of the plan to serve these needs.

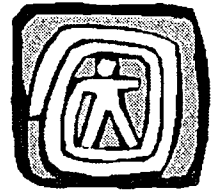
—Gifted Resource
Guide

From: *State Policies Regarding Education of the Gifted as Reflected in Legislation and Regulation*, by Passow and Rudnitski

Research on teachers of gifted students has focused on three elements: psychological traits, teaching competencies, and training programs for teachers of gifted students. Several reviews of the literature on traits and competencies of good teachers of gifted students have been conducted in the United States (Bishop, 1968; Feldhusen, 1985; Feldhusen & Hansen, 1987, 1988, 1992; Hultgren & Seeley, 1982; Maker, 1975; Seeley, 1979; Sisk, 1975). *The most important characteristics of effective teachers of gifted students that emerge from these reviews are flexibility, enthusiasm, self-confidence, high intelligence, appreciation of giftedness, broadly cultured background, ability to foster higher level thinking and problem solving, and capacity to meet personal and social needs of gifted students.*

Reforms that invest time in teacher learning and give teachers greater autonomy are our best hope for improving America's schools.

From: Linda Darling-Hammond, *The Quiet Revolution: Rethinking Teacher Development*.



Indicators of a Crisis—High-Ability Learners at Risk

Perceptions exist that education problems are confined largely to children at risk of school failure. Many education reports have articulated problems in general education, but they have ignored the condition of education for the nation's most able students. There is some research to indicate that high-ability learners do not learn as much as they could and compare unfavorably with students in other countries. The results of the NAEP (National Assessment of Educational Progress) suggest that the curriculum offered throughout the nation fails to prepare most students to operate at advanced intellectual levels.

The indicators tell us that:

- Only a small percentage of students are prepared for challenging college-level work as measured by tests that are not very exacting or difficult.
- The highest-achieving American students fare poorly when compared with similar students in other nations.
- Students going on to a university education in other countries are expected to know more than American students and to be able to think and write analytically about that knowledge on challenging exams.

From *National Excellence: A Case for Developing Americas' Talent*
Pat O'Connor Ross, U.S. Department of Education.



Getting Started With Staff Development

Get Ready—It is important to have commitment, dedication, preparation, and school and community collaboration. Without planning, brainstorming and assessing the needs of your district, the staff and community will not be ready for a staff development plan. Ownership and collegiality is necessary for success.

Get Set—Consult with local and state experts. Read, reflect and ask for help from the following: Nebraska Department of Education, Universities, Nebraska Association for the Gifted, Nebraska Parent Network, Educational Service Unit, Established High Ability Programs, Internet Resources, Distance Learning, and National Association for Gifted Children.

GO—Staff development plan. Teacher learning should be as diverse and individually appropriate as student learning should be. Staff development may be needed in the following areas:

- characteristics of high-ability learners
- social/emotional needs of high-ability learners
- curriculum and instructional strategies
- assessment techniques

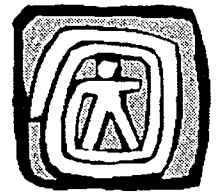
KEEP GOING—Program renewal, ongoing classroom climate assessment, student achievement evaluation and training/collaboration with specialists.



Interface Between Gifted Education and General Education: Toward Communication, Cooperation and Collaboration

Gifted Education has often seemed isolated from general education, in part because of differing perspectives on equity and excellence goals and tensions resulting from those divergent viewpoints. Recently, however, there have been calls from both educators of the gifted and general educators for an increased interface between the two fields.

(Quote from Abstract by Tomlinson, Coleman, Allan, Udall and Landrum, From: *Gifted Child Quarterly*, Vol 40, #2, Summer 1996).



Principles and Criteria for Staff Development

From the *Texas State Plan, Guidelines for the Education of the Gifted/Talented*

Principle I: Administrative and supervisory staff support gifted/talented education through providing the leadership and resources for effective staff development.

Criteria

- A climate conducive to acceptance of change and growth is created.
- The need for an ongoing, in-depth, planned program for staff development in gifted/talented education is recognized.
- All staff receive a general overview of gifted/talented education and an orientation regarding the district program, including student identification procedures.
- All staff charged with direct responsibilities in program planning and operation receive a minimum of 30 hours of staff development in gifted education. Additional training should be provided as needed.
- Adequate resources are provided specifically for comprehensive staff development in gifted/talented education and related areas.
- Target audiences for training also include parents and community members.

Principle II: Staff development is ongoing and planned on the basis of data collected from needs assessments, program evaluations, and appraisals of teachers of the gifted.

Criteria

- The effectiveness of present instructional services for gifted students is analyzed for use in determining staff development needs.
- Teacher characteristics and competencies are considered in assessing staff development needs.
- Staff are selected and trained to develop and implement differentiated curriculum.



Resources

Resources for Social/Emotional Development

Adderholdt-Elliott, M. (1987). *Perfectionism: What's Bad About Being Too Good?* Free Spirit Publishing.

Berger, S. L. (1989). *College Planning for Gifted Students*. The Council for Exceptional Children, ISBN 0-86586-184-6.

Clark, B. (1988). *Growing Up Gifted*. Merrill Publishing Company, ISBN 0-675-20832-7.

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Galbraith, J. (1987). *The Gifted Kids Survival Guide*. Free Spirit Publishing Company.

Kerr, B. (1987). *Smart Girls Gifted Women*. Ohio Psychology Publishing Company, ISBN 0-910707-07-3.

Schiever, S. W. (1993, May/June). "Facilitating Emotional Development of the Gifted." *Understanding Our Gifted*.

Silverman, L. K., Ed. (1993). *Counseling the Gifted and Talented*. Love Publishing Company, ISBN 0-89108-227-1.

Swart, R. S. (1993, March). "Smart, Talented and . . . Failing." *Adolescence*.

Winebrenner, S. (1996, March/April). "Above and Beyond." *Understanding Our Gifted*.



Other Resources for Social/Emotional Development

Johnson, N. L. (1990). "Questioning makes the Difference" in *Pieces of Learning*. ISBN 0-9623835-3-8

Karnes, F. A. and T.L. Riley. (1996). *Competitions: Maximizing Your Abilities*. Prufrock Press. 1-800-998-2208. ISBN: 1-882664-28-3 (This book lists 275 competitions and eligibility requirements, etc. for grades K-12).

McIntosh, J., Ed. (1992). *20 Ideas for Teaching Gifted Kids in the Middle School and High School*. Prufrock Press 1-800-998-2208. ISBN 1-882664-05-1

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Wright, __. and _____. Olszewski-Kubilius. (1993). *Helping Gifted Children and Their Families Prepare for College: A Handbook Designed to Assist Economically Disadvantage and First-Generaton College Atendees*.

Internet Sites

<http://www.monster.educ.kent.edu/CoE/EFSS/SENG/mission.html> (A site devoted to meeting the social and emotional needs of high ability-learners.)

<http://www.npac.syr.edu/textbook/kidsweb/> (A good site for children to look up lots of different topics.)

<http://www.classroom.net/> (An excellent resource for teachers that lists good educational sites and is upDATED monthly.)

<http://www.iglou.com/xchange/ece/index.html> (A site devoted to pen-pal classrooms.)

<http://www.euthanasia.org/mensal.html> (A link to Mensa and lots of other sites of interest to intelligent people.)

<http://www.aristotle.sils.umich.edu/ref/QUE/f> (This is an internet public library which offeres a question-answering service.)

<http://www.njnie.dl.stevens-tech.edu/curriculum/aska.html> (This is a primary link to Ask-an-Expert home pages.)



Resources for Social/Emotional Development (continued)

<http://www.npac.syr.edu/textbook/kidsweb/> (A world wide web digital library for schoolkids offers links in four broad areas - arts, science, social studies and miscellaneous along with links to lots of other education resources.)

Listservs

G-TOT-L: topics related to very young children (generally for gifted children under 6 YEARS old) List address: listproc@eskimo.com

TAG-L: General discussion about all topics related to gifted children. List address: listserv@juvm.stjohns.edu

TAGFAM: Discussion and support list for families of TAG or G/T children. List address: listserv@sjvm.stjohns.edu

GIFTEDNET-L: Science and Language Arts Curriculum Projects for High Ability Learners. List address: listserv@listserv.cc.wm.edu

U-ACHIEV: Academic underachievement and underachieving students, including gifted. List address: majordomo@virginia.edu



Resources for Curriculum Differentiation

- Berger, S.L. (1994). *Differentiating Curriculum for Gifted Students*. ED 342175 ERIC Digest #E510.
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- CAPs (Contract Activity Packages). Available from Learning Styles Network. Telephone (718) 990-6335.
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- Cochran, J. (1992). *What To Do With the Gifted Child*. Nashville, TN: Incentive Publications, Inc. ISBN # 0-86530-174-3.
- Differentiating the Core Curriculum and Instruction to Provide Advanced Learning Opportunities*. (1994). California State Dept. of Education. ISBN # 0-8011-1093-9.
- Engine-Uity, Ltd. Telephone (602) 997-7144.
- Feldhusen, J., J. Hansen, and D. Kennedy. (1989). "Curriculum Development for GCT Teachers." *Gifted Child Today*, 12 (6), 12-19.
- Gifted Education Resource Guide*. (DATE). Montana Office of Public Instruction.
- Jacobs, H., and J. Borland. (1986). "If the Shoe Fits. The Interdisciplinary Concept Model: Theory and Practice." *Gifted Child Quarterly*, 30 (4), 159-163.
- Kaplan, S.N. (1979). *Inservice Training Manual: Activities for Developing Curriculum for the Gifted/Talented*. The National/State Leadership Training Institute on the Gifted and Talented.
- Maker, C.J. (1982). *Curriculum Development for the Gifted*. Rockville, MD: Aspen.
- Management Guide for Elementary Differentiated Curriculum and Instruction*. (1991). Lincoln Public Schools Curriculum Services.



Resources for Curriculum Differentiation (continued)

Martens, L. and S. Martens. (1992). *Dr. Marvel's Magnificent Mind Machine*. Minneapolis, MN: Free Spirit Publishing, Inc.

Renzulli, J.S. (1994). *Schools for Talent Development: A Practical Plan for Total School Improvement*. (CITY). Creative Learning Press. ISBN # 0-936386-65-7.

Standards for Programs Involving the Gifted and Talented. (1989). Reston, VA: The Council for Exceptional Children. The Association of the Gifted (TAG).

The Texas State Plan and Guidelines for the Education of the Gifted/Talented. (1991). Texas Education Agency.

Thinking Caps for the Gifted. Telephone (602) 279-0513. (Sources of self-contained units for independent study using Bloom's Taxonomy. Call and request catalogs and/or brochures.)

VanTassel-Baska, J., J. Feldhusen, K. Seeley, G. Wheatley, L. Silverman, and W. Foster. (1988). *Comprehensive Curriculum for Gifted Learners*. Needham Heights, MA: Allyn & Bacon.

Winebrenner, S. (1992). *Teaching Gifted Kids in the Regular Classroom*. Minneapolis, MN: Free Spirit Publishing, Inc. ISBN # 0-915793-47-4.



Resources for Curriculum Compacting

Chall, J.S., & Conrad, S.S. (1991). *Should Textbooks Challenge Students? The Case for Easier or Harder Text Books*. New York: Teachers College Press.

Flanders, J.R. (1987). "How Much of the Content in Mathematics Textbooks is New?" *Arithmetic Teacher*, 35, 18-23.

Kirst, M.W. (1982). "How to Improve Schools Without Spending Money." *Phi Delta Kappan*, 64(1), 6-8.

Nelson, K. (1992). "Curriculum Compacting: A Model for Teacher/Specialist/Parent Collaboration." *Understanding Our Gifted*. May/June; 5-6.

Reis, S. M., and J.S. Renzulli. (1992). "Using Curriculum Compacting To Challenge the Above-Average." *Educational Leadership*. 2; 51-57.

Renzulli, J.S. (1977). *The Enrichment Triad Model*. Mansfield Center, Conn.: Creative Learning Press.

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Winebrenner, S. (1992). *Teaching Gifted Kids in the Regular Classroom*. Minneapolis, MN: Free Spirit Publishing Inc.

Sources for materials

Challenge Magazine: Reaching and Teaching the Gifted Child

Good Apple

Box 299

Carthage, IL 62321

Reproducible enrichment activities

Creative Publications

5040 W. 111 Street

Oaklawn, IL 60453

Problem solving material



Resources for Curriculum Compacting (continued)

Engine-Uity, Ltd.
PO Box 9610
Phoenix, AZ 85068
Learning Centers using Bloom's Taxonomy

Future Problem Solving
315 W. Huron, Suite 140-B
Ann Arbor, MI 48103-4203
Telephone: (313) 998-7377
National contest for teaching creative problem solving

Interact
PO Boc 997-H91
Lakeside, CA 92040
Simulations

Mathematical Olympiads
2154 Bellmore Avenue
Bellmore, NY 11710-5645
International Mathematical problem solving contest

Middle School and Senior High Quiz Bowl
John Kennedy
ESU 10
76 Plaza Boulevard
PO Box 850
Kearney, NE 68848-0850
Quiz Bowl competition for ESU 10 students

Thinking Cap Quiz Bowl
4220 Park Hill Circle
Urbandale IA 50322
Computer generated quiz bowl for Nebraska Students



Resources for Curriculum Enrichment

- Armstrong, T. (1994). *Multiple Intelligences in the Classroom*. Alexandria, VA: ASCD.
- Ausbel, D. (1978). "In Defense of Advanced Organizers: A Reply to Critics." *A Review of Educational Research*. 48,2: 251-257.
- Clarke, J.H. (1991). *Patterns of Thinking*. Needham Heights, Massachusetts: Allyn and Bacon.
- Fogarty, R. (1991). "Ten Ways to Integrate Curriculum." *Educational Leadership*. 49 (2) 61-65.
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- Mason, C. And Mathison, C. (1989). "Interdisciplinary Curriculum Planning: A Systemized Approach." Presentation to ASCD Annual Conference, Orlando, FL.
- Neisser, U. (1976). *Cognition and Reality*. San Francisco, CA: W.H. Freeman and Company.
- Winebrenner, S. and Berger, S. (1994). *Providing Alternatives to Motivate Gifted Students*. ED 524. Reston, VA: The Eric Clearinghouse on Disabilities and Gifted Education. The Council for Exceptional Children.



Resources for Acceleration

Bursick, W. and M. Friend. (1996). *Including Students with Special Needs*. (PUBLICATION). (CITY): Allyn and Bacon, 194-196.

King, V. *Academic Acceleration*. Eric Digest.

Galbraith, J. (1985). "The Eight Great Gripes of Gifted Kids: Responding to Special Needs." *Roeper Review*, 8(1) 16.

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Differentiating The Core Curriculum and Instruction to Provide Advanced Learning Opportunities. (1994). Sacramento, CA: California Department of Education and the California Association for the Gifted.

Learner Goals for Gifted And Talented Students: Strategies for Design, Integration and Assessment. (1994). Montana Office of Public Instruction.

Gifted Instruction Resource Guide: Research and Demonstration Series. Montana Public Instruction.

The Texas State Plan and Guidelines for the Education of the Gifted/Talented. (1991) Texas Education Agency.



Resources for Cooperative Learning

Allan, S.D. "Ability Grouping Research Reviews: What Do They Say about Grouping and the Gifted?" *Educational Leadership* . 48:6 (1991): 60-5.

Bellanca, J., and R. Fogarty. (1991). *Blueprints for Thinking in the Cooperative Classroom*. Palantine, IL: Skylight.

Chuska, K. *Gifted Learners K-12: A Practical Guide to Effective Curriculum and Teaching*.

Clark, B. (1983). *Growing Up Gifted*. Columbus: Merrill.

Cohen, E. (1986). *Designing Groupwork*. New York: Teacher's College Press.

DeVries, D.L., and R. Slavin. (1978). "Teams-Games-Tournament (TGT): Review of Ten Classroom Experiments." *Journal of Research and Development in Education* . 12: 22-38.

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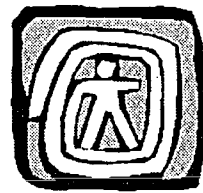
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—. (1984). *Effects of Ability Grouping on Elementary School Pupils: A Meta-Analysis*. Paper presented at the annual meeting of the American Psychological Association, Ontario, Canada.

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Mills, C. and W. Durden. (1992, Winter). "Finding an Optimal Match: A Reasonable Response to the Use of Cooperative Learning, Ability Grouping, and Tracking." *Gifted Child Quarterly* 36:1, 11-16.

Newland, T.E. (1976). *The Gifted in Socioeducational Perspective*. Englewood Cliffs, NJ: Prentice.

Renzulli, J. (1975). *A Guidebook for Evaluating Programs for the Gifted and Talented*. Ventura: Office of the County Superintendent of Schools.

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Robinson, A. (1991). "Cooperation or Exploitation: The Arguments against Cooperative Learning for Talented Students." *Journal for the Education of the Gifted* . 14: 9-27.

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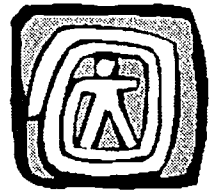
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Resources for Mentoring

Ambrose D.J., J. Allen, and S. Huntley. (1994, December). "Mentorship of the Highly Creative." *Roeper Review*.

Karges-Bone, L. (1996). "Making the Most of Mentoring Programs." *Challenge*. Good Apple, Issue 68.

Lewis, G. (1994, February). "Mentors: Role Models for Thinking." *Think*.

Milam, C.P. and B. Schwartz. (1992, May/June). "The Mentorship Connection." *Gifted Child Today*. (This is an excellent book for setting up a career mentorship program.)

Reilly, J.M. (1992). *Mentorship: The Essential Guide for Schools and Business*. Dayton, OH: Ohio Psychology Press.

Roberts, J.L. (1992, May/June). "Parents Can Be Mentors, Too." *Gifted Child Today*.

Weiner, D.A. (1992, May/June). "Mentors Highlight the Essence." *Gifted Child Today*.

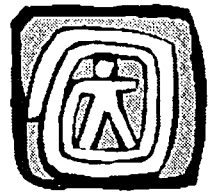
Whitton, D., Siegle, D., "What Educators Need to Know About Mentoring." *Practioners' Guide*. A9406. Storrs, CT: The National Research Center on the Gifted and Talented.

Mentoring Resource Contacts

Lincoln Public Schools Mentoring Program for Gifted Students
720 South 22nd Street, Lincoln, NE 68508
Tom Hays
(402) 436-1000

Lincoln Indian Center
1100 Military Road, Lincoln, NE 68508
Valerie Shangreaux
(402) 474-5231

Private Industry Council/Lincoln Public Schools Mentoring
Program
P.O. Box 82889, Lincoln, NE 68501
Jim Cotter
(402) 475-1081



Resources for Mentoring (continued)

School Community Involvement Program
Sandy Creek Schools
P.O. Box 127, Fairfield, NE 68938
Sanie Davis
(402) 726-2155

Grand Island Northwest High School
2710 North Road, Grand Island, NE 68802
Jane Brown
(308) 385-6394

Grand Island Public Schools
Professional Development Center
Grand Island, NE 68803
Kay Grimminger

Jan Kauffman
1108 Avenue H
Gothenburg, NE 69138

Other Mentoring Resources

ONE PLUS ONE, the PLUS project on mentoring, Project PLUS and the NEA PLUS Project Literacy US, 4802 Fifth Avenue, Pittsburgh, PA 15213. The following are available from the address above:

Beginning a Mentoring Program, Advice for launching a program, including tips on assessment, staffing, recruiting, matching and funding.

The Power of Mentoring, with an introduction by Lee Iacocca. Collection of essays by several professional, a mentor and mentee.

A Special Report on Mentoring from Project PLUS and the ASPIRA Association, Newsletter with features on how mentoring serves the Hispanic community.

A Special Report on Mentoring from Project PLUS and the National Education Association. Newsletter with features on how mentoring serves the school community.



A Special Report on Mentoring from Project PLUS and the National Urban League. Newsletter with features on how mentoring serves the African-American community.

A Youth Mentoring Program Directory compiled by One PLUS One and United Way of America. Lists national and local mentor programs with contact names and addresses.

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Resources for Funding Issues

The following agencies or foundations are listed below to aid local districts in seeking outside funding.

Educational Service Units of Nebraska

U.S. Office of Gifted and Talented
U.S. Department of Education
Washington, DC (www.whitehouse.gov/edu)

TAGFAM (Talented and Gifted Support for Families)
Bob Zenhausern, Ph.D. (drz@sjuvm.stjohns.edu)
Professor, Department of Psychology
St. John's University,
Jamaica, New York

Nebraska Department of Education
301 Centennial Mall South
Box 94987
Lincoln, Nebraska

Nebraska Association for the Gifted
11683 Capitol Avenue
Omaha, Nebraska

Foundation for Exceptional Children
Minigrant Awards Application Guidelines
Minigrant Committee
1920 Association Drive
Reston, Virginia 20191

Lottery Foundation
Nebraska Department of Education
301 Centennial Mall South
Box 94987
Lincoln, Nebraska



Resources for Funding Issues (continued)

On the Internet: Yahoo: Education; K-12; Search

Education Trust—created to promote high academic achievement for all students, at all levels, kindergarten through college

A World Aware: Reality Education—comprised of education and business leaders that offer assistance to schools

NASSP—National Association of Secondary School Principals

NAESP—National Association of Elementary School Principals

NAFIS—National Association of Federally Impacted Schools

NASB—National Association of State Boards of Education

NEA—National Education Association

PTA—Parent and Teachers Association

ASCD—Association for Supervision and Curriculum Development

The National Foundation for Gifted and Creative Children

Marie Friedel, Executive Director

395 Diamond Hill Road

Warwick, RI 02886 (nfgcc@aol.com or michele@primenet.com)

Journal of Secondary Gifted Education

Ball State University

(Prufrock@prufrock.com)

National Association for Gifted Children

1707 L Street, NW Suite 550

Washington, DC 20036

202-785-4268



Resources for Funding Issues (continued)

Gifted and Talented Education
Mary Ann Koral, GATE Coordinator
2206 West River Road
San Jose, CA
408-453-6521

Advocacy for Gifted Education Groups (talkback@ctdnet.acns.nwu.edu)

Books and Other Resources

The Gifted Kid's Survival Guide (Gailbraith)
The Gifted Kid's Survival Guide (Gailbraith and Delisle)
Counseling The Gifted and Talented (Silverman)
Temperament In Clinical Practice (Thomas and Chess)
Keys to Parenting the Gifted Child (Rimm)
Teaching Gifted Kids in the Regular Classroom (Weinbrenner)
Please Understand Me (Kiersey & Bates—MBTI)
The Teenage Liberation Handbook (Llewellyn)
Real Lives (Llewellyn)
Managing the Social and Emotional Needs of the Gifted (Schmitz & Gailbraith)

Local Funding Sources

- Title VI—Federal Funding flowing to Libraries
- General Fund Budgets
- Eisenhower Math and Science Grants
- Improving America's Schools Act (IASA) Title 1

Local Resources

Civic Groups and Parent Organizations
Service Organizations
Private Benefactors
Foundations
Private Business
Corporate Business (local, regional, national)
Fund raising activities



Resources for Funding Issues (continued)

Local Foundations

Gardner Foundation; Omaha, Nebraska
ConAgra Foundation; Omaha, Nebraska
Keiwit Foundation; Omaha, Nebraska
Public School Foundations (www.foundations.org)
State College Foundations

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- Hanninen, G. (1994). "Blending Gifted Education and School Reform." ERIC Digest #525. ERIC Clearinghouse on Disabilities and Gifted Education; The Council for Exceptional Children.
- Internet searches: Yahoo; Lycos; Magellan; Hotbot; Excite; Alta Vista
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U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)



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