

A Look Around and a Look Ahead: Emerging Conceptions of Giftedness and Talent



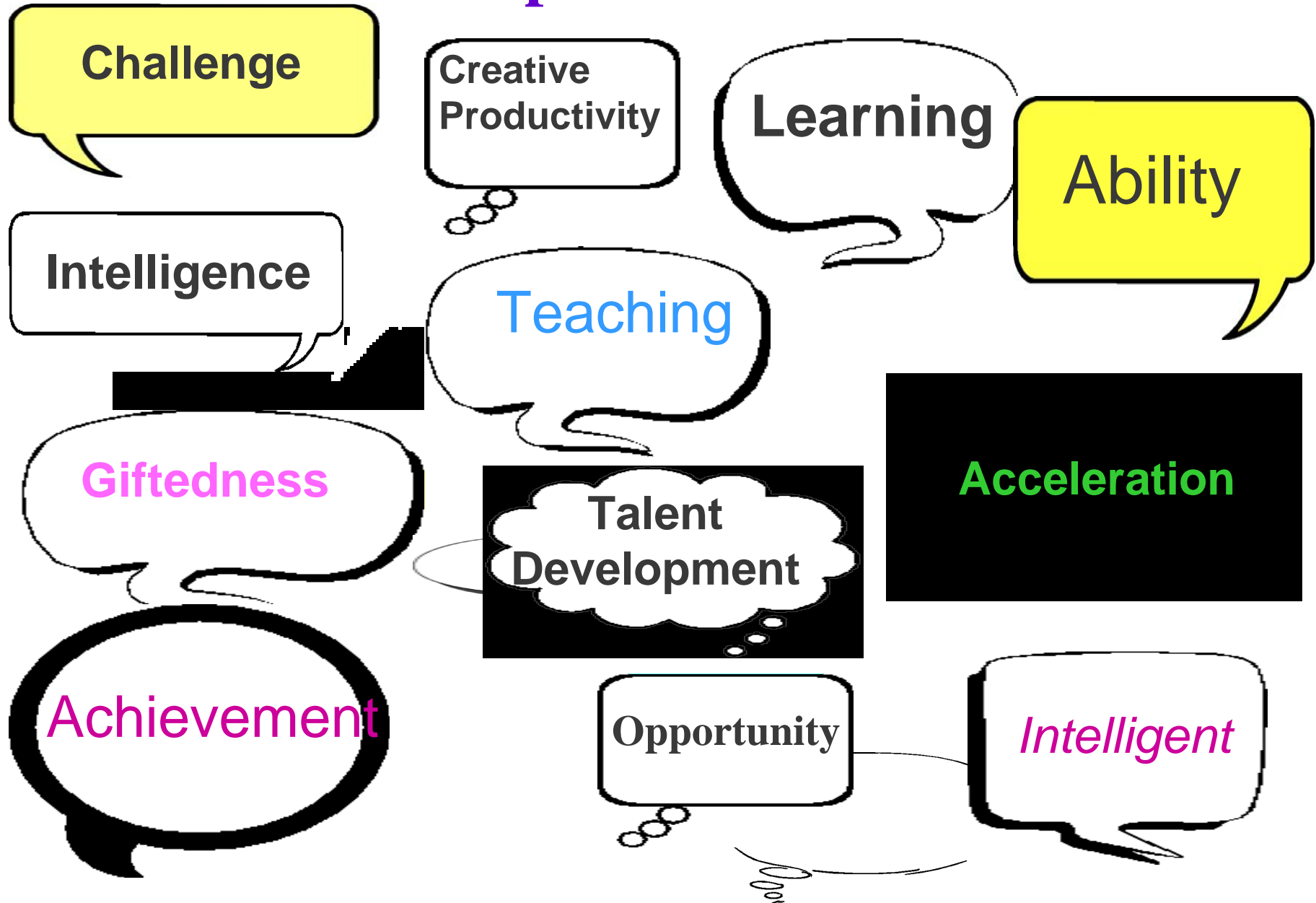
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Presentation Topics

- ✓ **What are the significant conceptions of intelligence and giftedness?**
- ✓ **What are some common threads in the most recent conceptions?**
- ✓ **What can classroom practitioners do to enhance the gifts and talents of all students, including those with high abilities?**



Let's Start at the Beginning: What Do These Concepts Mean To You?



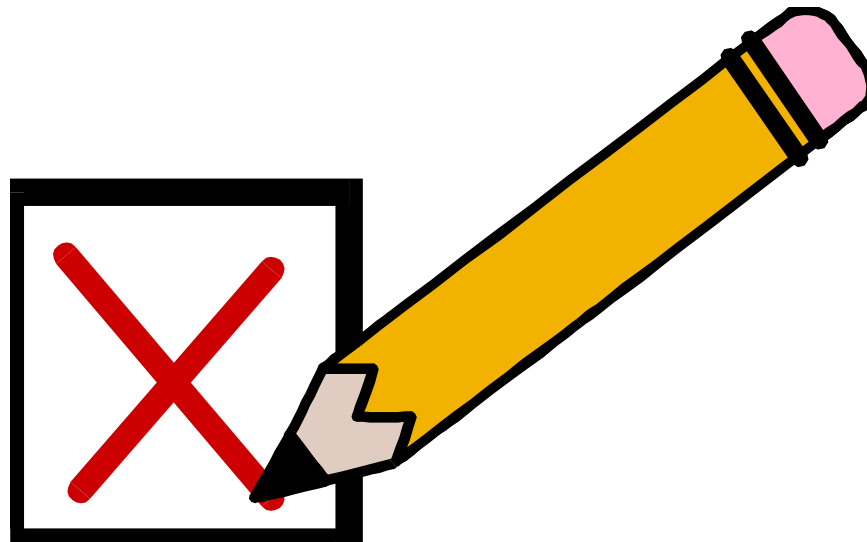
Evolving Conceptions of Intelligence

- ◆ **Psychometric:** Binet & others
- ◆ **Developmental:** Piaget & Vygotsky
- ◆ **Biological:** Jensen
- ◆ **Multiple Forms:** Sternberg & Gardner
- ◆ **Emotional IQ:** Goleman
- ◆ **Giftedness & Talent:** Renzulli & Gagne
- ◆ **The “New” IQ:** Effort & Expertise: Sternberg, Tomlinson, et al



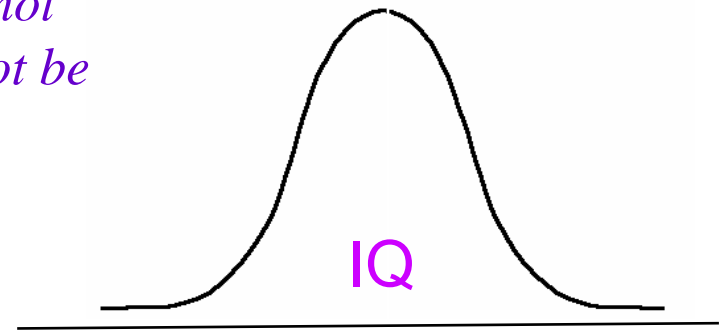
Psychometric Definition

Intelligence is a person's score
on an IQ test.



What Do IQ Tests Measure?

“The scale, properly speaking, does not permit the measure of intelligence because intellectual qualities are not superposable, and therefore cannot be measured as linear surfaces are measured.” -Alfred Binet, 1904



(1890s-1950s)

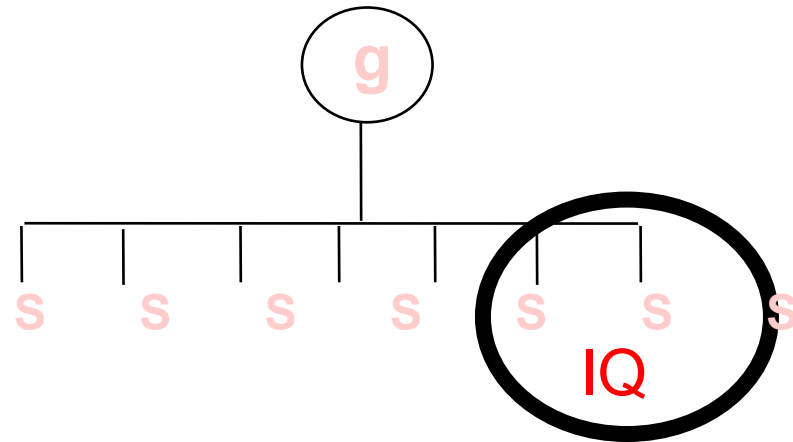
Binet

Spearman

Terman

Thorndike

Thurstone



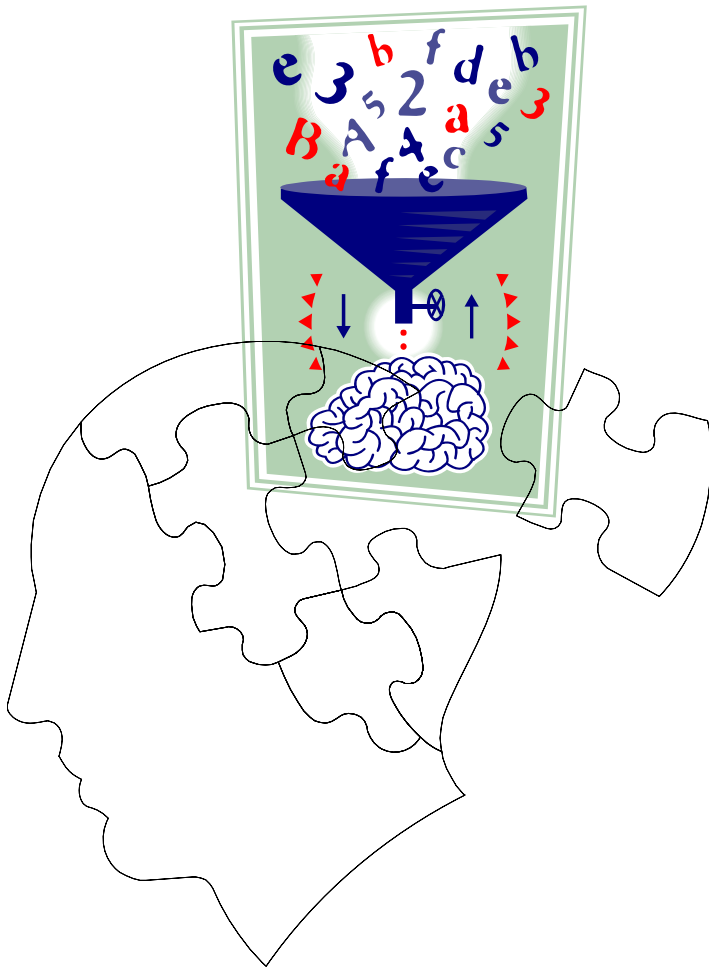
(Academic Ability)

Psychometric Conception



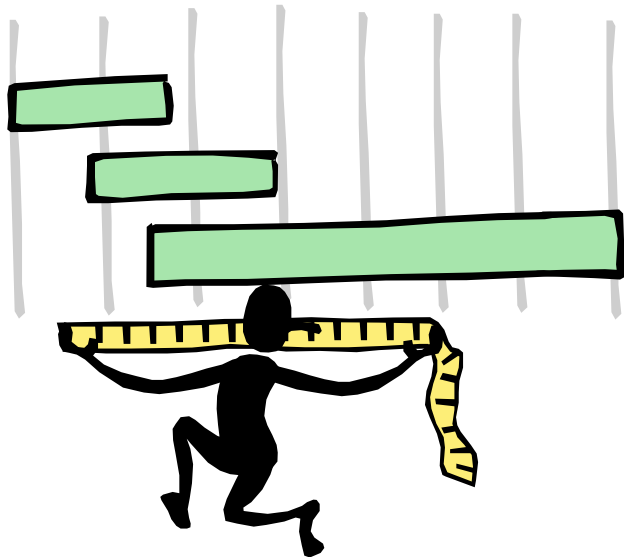
- ◆ Individuals are born with a certain intelligence.
- ◆ Intelligence is difficult to change.
- ◆ It can be measured with short-answer tests.
- ◆ Intelligence is normally distributed.

The Developmental Conception



- ◆ Intelligence *develops*.
- ◆ It develops through a continually shifting balance between assimilation and accommodation. Assimilation is the classification of new information into existing schemas. Accommodation is the creation of new schemas/structures to accommodate information.

The Developmentalists: Vygotsky



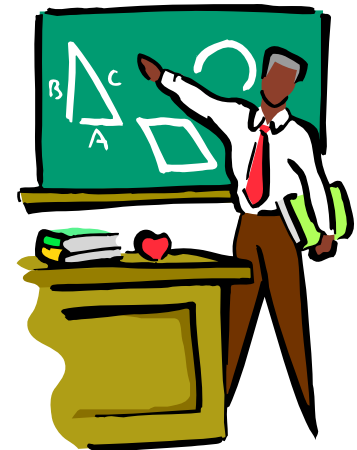
- ◆ All intellectual abilities are social in origin.

Language and thought are first abilities; all others continue to develop through contact with teachers and others.

- ◆ “Zone of Proximal Development” and the use of scaffolding can reveal a child’s latent potential.

Developmental Definition of Intelligence

Intelligence is a dynamic potential that can be increased by environmental factors, teachers, and other adults.



Biological Definition of Intelligence



Intelligence is a function of brain anatomy and physiology.

Eureka! Multiple Intelligences

- ◆ **Scope of psychometric work is too narrow.**
- ◆ **Methods of assessment overlook several forms of intelligence.**



Mike De Sisti / The Post-Crescent

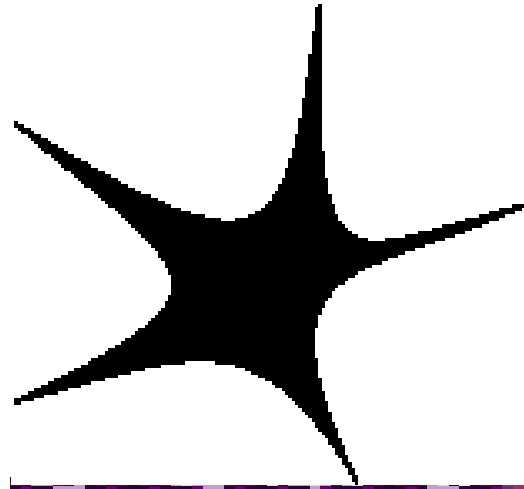
Multiple Intelligences: Sternberg

- ◆ **Three aspects of intelligence:**
 - **Analytic (can be measured with traditional assessments)**
 - **Creative**
 - **Practical**



The Triarchic Theory of Intelligence

**Successful
Intelligence**



Analytic
Practical **Creative**

Practical Intelligence...

◆ Analytic Problems may:

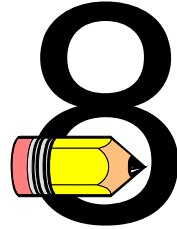
- Have been formulated by others
- Be clearly defined
- Come with all the information
- Have 1 right answer and method
- Are de-contextualized
- Hold little intrinsic interest



◆ Practical problems may:

- Require recognition and formulation
- Be poorly defined
- Require info seeking
- Have multiple solutions
- Be embedded in everyday experience
- Require personal involvement

Gardner's MI Theory: What Is It?



- ◆ The brain's functions are attributable to various parts of the brain.
- ◆ Intelligence is multi-dimensional.
- ◆ Each person possesses all 8/9 intelligences.
- ◆ Intelligence can be increased.
- ◆ Most people can develop each intelligence to an adequate level of competency.
- ◆ Intelligences work together in complex ways.
- ◆ There are many ways to be intelligent within each category.

Gardner's Definition of Intelligence

Intelligence is the ability to solve a problem that is valued in at least one culture.



Emotional Intelligence

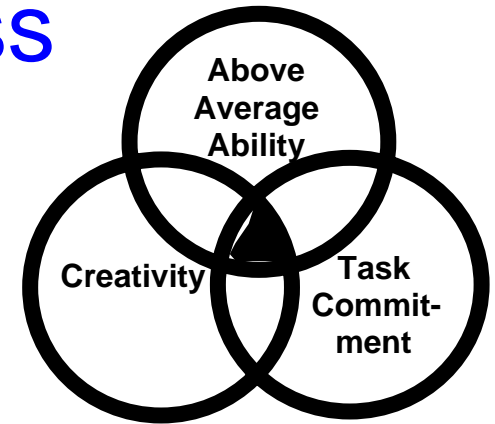
- ◆ **The ability to identify and name one's emotional states and to understand the link between emotions, thought and action.**
- ◆ **The capacity to manage one's emotional states — to control emotions or to shift undesirable emotional states to more adequate ones.**
- ◆ **The ability to enter into emotional states (at will) associated with a drive to achieve and be successful.**
- ◆ **The capacity to read, be sensitive to, and influence other people's emotions.**
- ◆ **The ability to enter and sustain satisfactory interpersonal relationships.**



Renzulli's Conception of Giftedness

Creative Productive Giftedness

- Above Average Ability
- Creativity
- Task Commitment

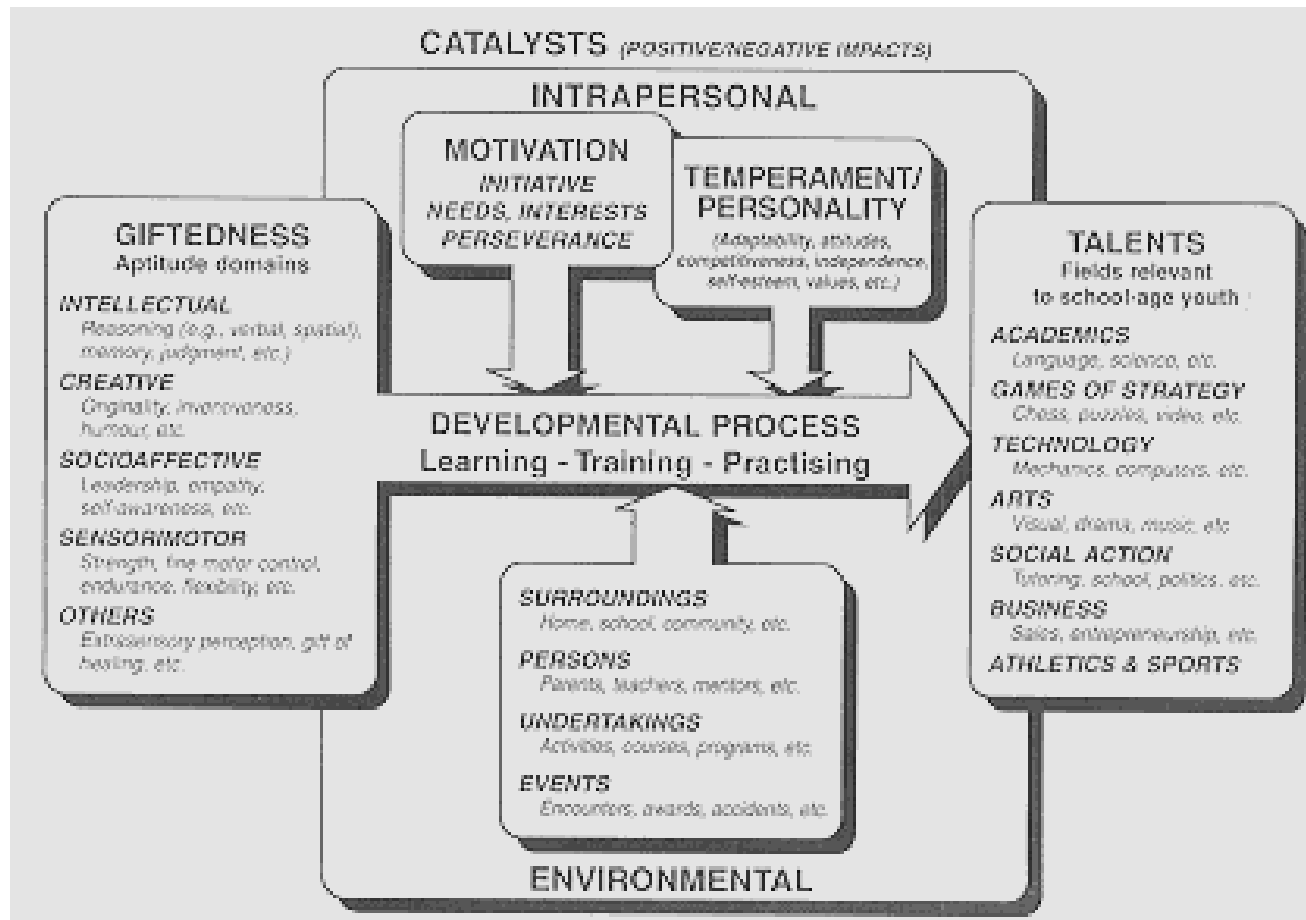


Learner (Schoolhouse) Giftedness

- Advanced Knowledge Level & Learning Rate
- Ability to Generalize & Transfer
- Analytical Thinking



Francois Gagne: Differentiated Model of Giftedness and Talents



Gagne, F. (1991). Toward a differentiated model of gifts and talent. In N. Colangelo and G.A. Davis (Eds.), *Handbook of gifted education* (pp. 65-80). Boston: Allyn & Bacon.

Frasier and Passow's Traits, Aptitudes, and Behaviors Associated with Giftedness



Interests

Intense
(sometimes
unusual) interests



Insight

Quickly grasps new
concepts and makes
connections; senses
deeper meanings.

Motivation

Evidence of
desire to learn.

Creativity

Produces many
ideas; highly
original



Humor

Conveys and
picks up on
humor

Reasoning

Logical approaches
to figuring out
solutions.

Memory

Large storehouse
of information on
school or
non-school topics.

Communication Skills

Highly expressive and effective
use of words, numbers, and
symbols.

Inquiry

Questions, experiments,
explores.



Problem-Solving Ability

Effective, often
inventive strategies for
solving problems

Two Minute Pause

Talk in groups of 2-3

Compare your original definition with your current thinking

- What did you keep the same?
- What might you change/refine?



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Driving Forces for Curricular Reform in the 21st Century

High School Reform Initiatives

- ◆ National Governors' Association (NGA)
- ◆ Educational Alliance at Brown
- ◆ National Conference of State Legislators (NCSL)
- ◆ Achieve.org

NCLB



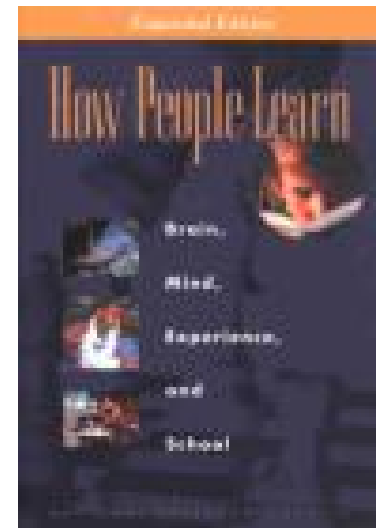
Publications

- ◆ *The World is Flat: A Brief History of the 21st Century*, Friedman
- ◆ *Rising Above the Gathering Storm*, National Academies Press
- ◆ *Breaking Ranks, I & II: Strategies for Leading High School Reform*, NASSP

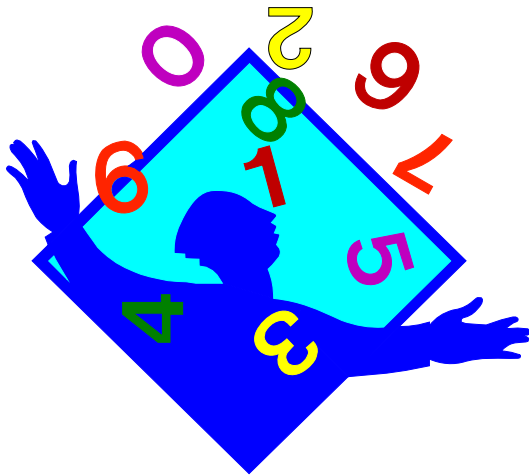
TIMSS
&
NAEP

Characteristics of Expertise

1. Experts notice meaningful patterns in information or processes;
2. Experts have a lot of content knowledge;
3. Expert knowledge is organized in a way that reflects deep understanding;
4. Expert information is tied to context and is not a series of facts and skills. It reflects how information is affected by circumstances;
5. Experts are flexible in their approach to new situations (use heuristics rather than algorithms);
6. Experts retrieve information with relatively little effort;
7. They are metacognitively aware;
8. Experts are confident and competent;
9. Experts start problem solving at a higher place;
10. Experts know they have much more to learn (vs. believing they have all the right answers).



Talent Development: Mathematics



- ◆ Dr. Linda Sheffield, Keynote Address, CAMPY Conference, Wesleyan University, January, 2002

- ◆ Creator
- ◆ Problem poser
- ◆ Problem solver
- ◆ Computer user
- ◆ A “doer”
- ◆ Illiterate

Intelligence as Developing Expertise

“The ongoing process of the acquisition and consolidation of a set of skills needed for a high level of mastery in one or more domains of life performance...[A]chieving expertise is not a result of some fixed prior level of capacity, but purposeful engagement involving direct instruction, active participation, role modeling and reward.” p. 361



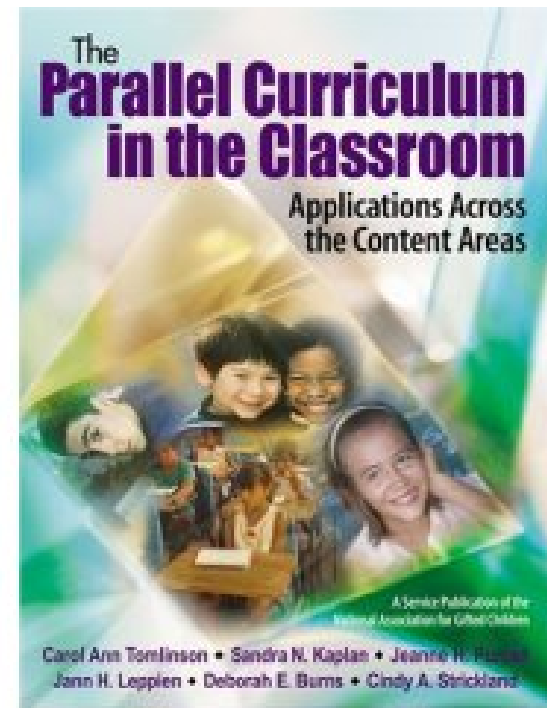
Developing Expertise: 5 Key, Domain-Specific Elements

1. **Metacognitive Skills:** People's understanding and control of their own cognition
2. **Learning Skills:** e.g., distinguishing relevant from irrelevant, combining information
3. **Thinking Skills-** critical, creative, and practical thinking skills
4. **Knowledge:** declarative and procedural
5. **Motivation:** achievement, self-efficacy



Tomlinson & Kaplan: Ascending Intellectual Demand (AID)

AID is a process teachers use to consistently and purposefully refine the match between learner development and curriculum and instruction. By modifying components of curriculum, the teacher provides escalating levels of challenge with an eye toward developing the knowledge, traits, attitudes and skills of experts.



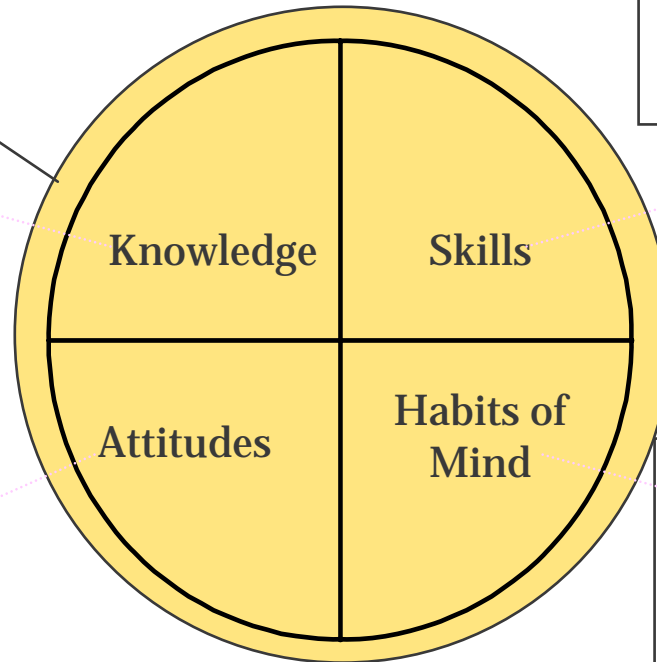
Tomlinson, C.A., Kaplan, S. N., Purcell, J. H., Leppien, J. H., Burns, D. E., & Strickland, C.A. (2006). *The Parallel Curriculum in the Classroom: Book 1: Essays for Application Across the Content Areas, K-12*. Thousand Oakes, CA: Corwin Press.

Establishing a Platform for Thinking about Expertise



What is the body of knowledge in this discipline?

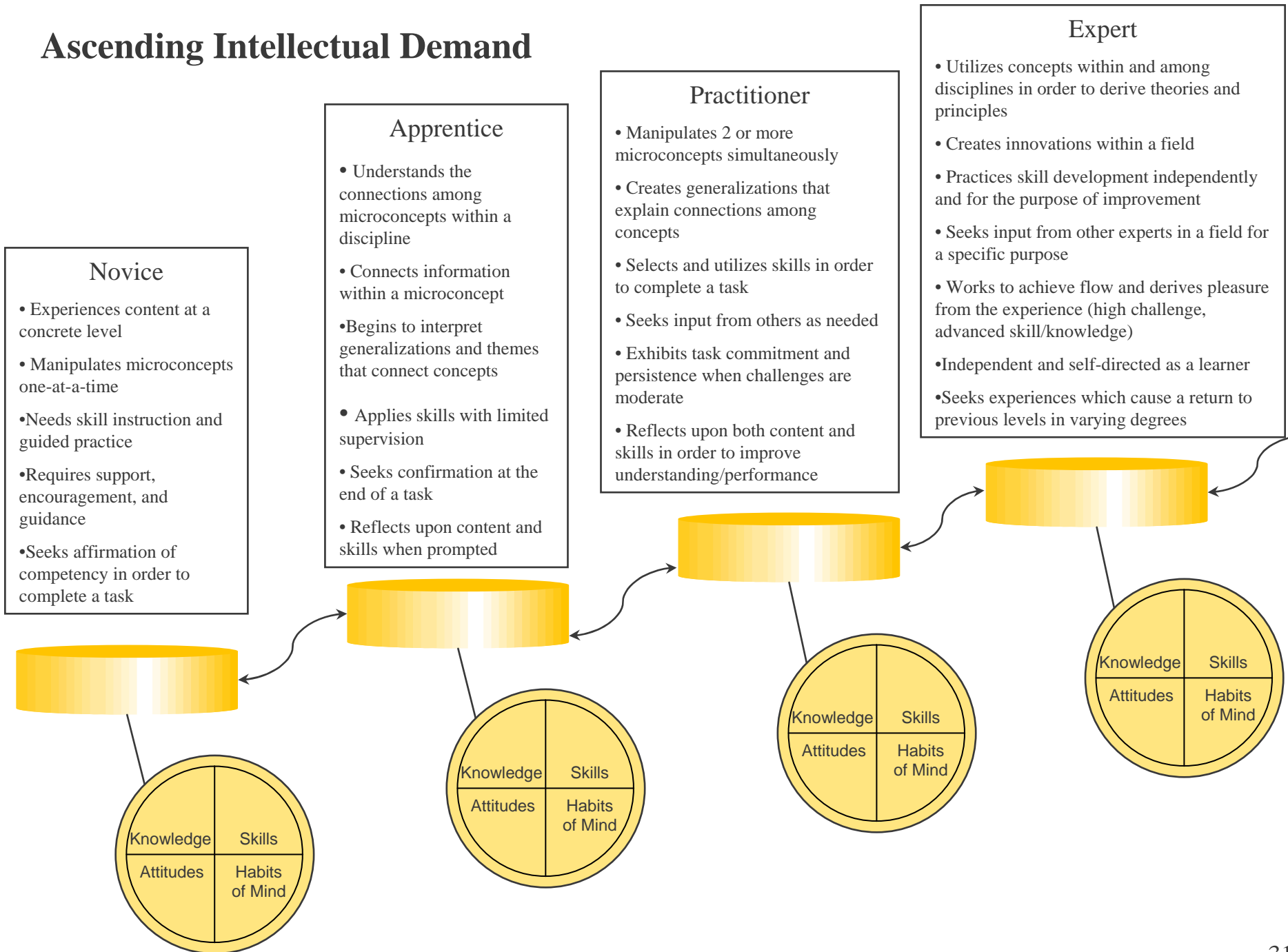
What attitudes lead to expertise in this discipline?



What are the skills that result in productivity in this discipline?

What habits of mind do experts in this discipline possess?

Ascending Intellectual Demand



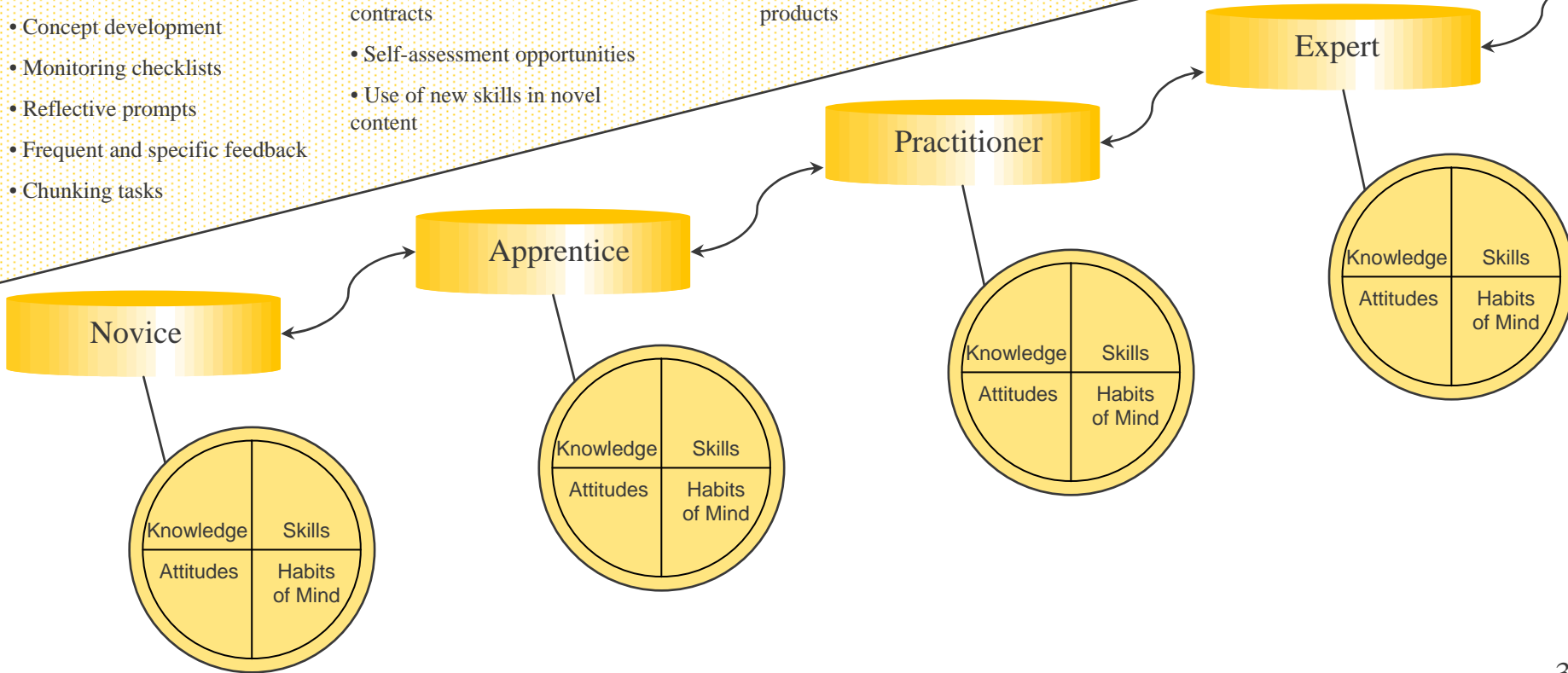
What does the learner need at each stage?

- One concept at a time
- Direct instruction in skills
- Guided practice
- Interest-based tasks
- Concept development
- Monitoring checklists
- Reflective prompts
- Frequent and specific feedback
- Chunking tasks

- Two to three concepts at a time
- Guided inquiry
- Cooperative learning for skill practice
- Shared development of assessment criteria
- Self-developed checklists and contracts
- Self-assessment opportunities
- Use of new skills in novel content

- Thematic focus in instruction (macroconcepts)
- Generalization building
- Interest-based extensions
- Exposure to problems, resources, and innovations
- Open inquiry
- Complex projects with authentic audience feedback
- Self-selected content, processes, products

- Focus on the unanswered questions within and across disciplines
- Resources to facilitate problem finding
- Removal of barriers to creative production (e.g., time, space, resources)
- Open access to other experts
- Emphasis on innovation and redefining the field through the testing of existing rules
- Collaboration with experts who will advance product development and challenge ideas
- Honest feedback from experts upon request



Science

Novice

- Analyzes existing theories, principles, and rules
- Sees science as a body of facts and skills
- Seeks algorithmic tasks; ambiguity causes discomfort
- Experimentation is an end in itself rather than a means to an end
- Sees a disproved hypothesis as a failure
- Inadvertently includes and fails to manage multiple variables
- Science is isolated from other disciplines

Apprentice

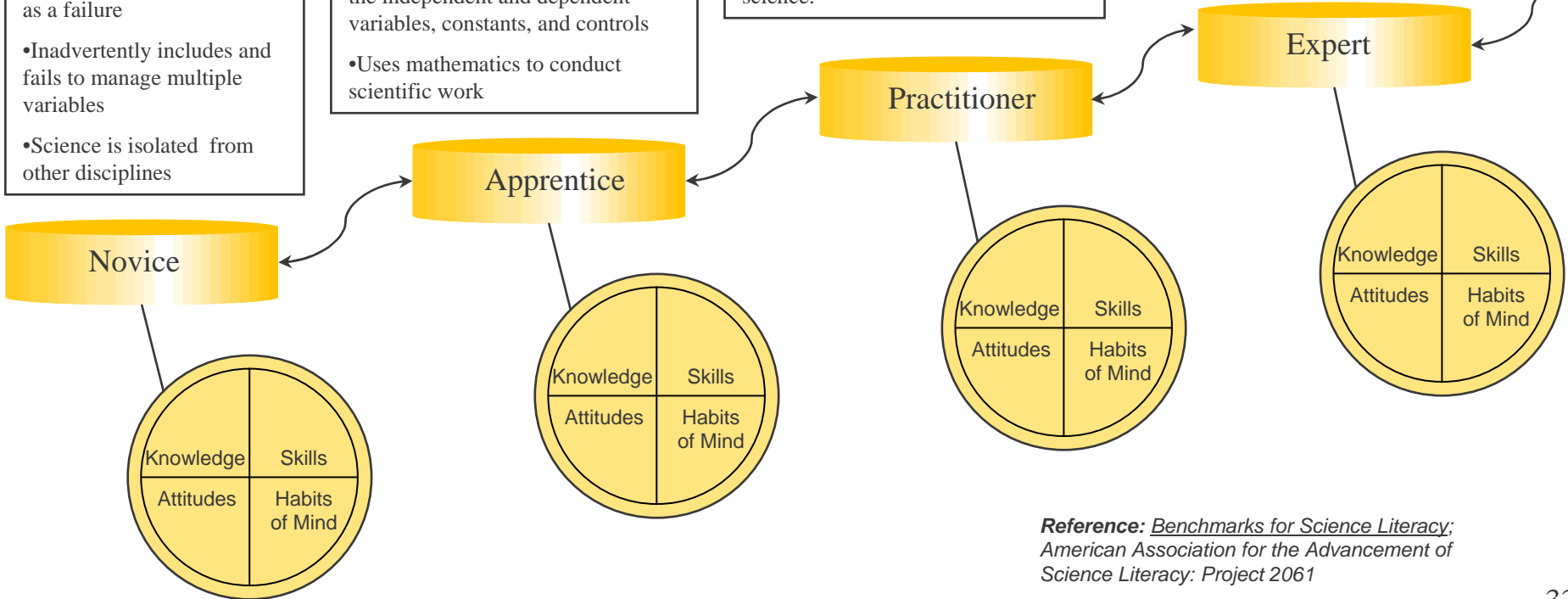
- Tests and manipulates existing theories, principles, and rules
- Sees science as a body of concepts and recognizes connections among the microconcepts
- Uses existing scientific questions for research and experimentation
- Tolerates the ambiguous nature of science
- Manipulates one variable within an experiment with ease
- Understands, identifies, and analyzes the relationships among the independent and dependent variables, constants, and controls
- Uses mathematics to conduct scientific work

Practitioner

- Challenges existing theories, principles, and rules through research and experimentation
- Understands and appreciates that scientific knowledge is never declared certain
- Poses new scientific questions
- Operates comfortably in the ambiguity that characterizes science
- Effectively manipulates multiple variables within an experiment
- Plans for and observes a wide range of factors (variables, constants, controls) and discerns patterns
- Uses mathematics as the language of science.

Expert

- Makes a contribution to the discipline and or field (e.g. new experiments, new observations, new methods and tools, new theories, principles, and rules)
- Poses original scientific questions that test the limits of the existing body of knowledge
- Understands and assesses the relationships among the fields of science and other fields across multiple disciplines
- Seeks and derives satisfaction from the ambiguous situations in science
- Conducts complex experiments with ease and fluidity; freely manipulates methods, tools, knowledge, and self to achieve desired results.



Reference: *Benchmarks for Science Literacy;* American Association for the Advancement of Science Literacy: Project 2061

Curricula Leading To Expertise Would:

1. Be built on key concepts, principles, skills and information from the discipline;
2. Ensure understanding rather than rote memory of the nature of the discipline;
3. Emphasize meaningful patterns of knowledge and pattern recognition;
4. Help students begin by trying to understand problems rather than searching for canned solutions;
5. Emphasize depth of knowledge over breadth;
6. Help students practice selective retrieval (i.e., look for relevant information and processes from large bodies of information or processes);



Curricula Leading To Expertise Would:

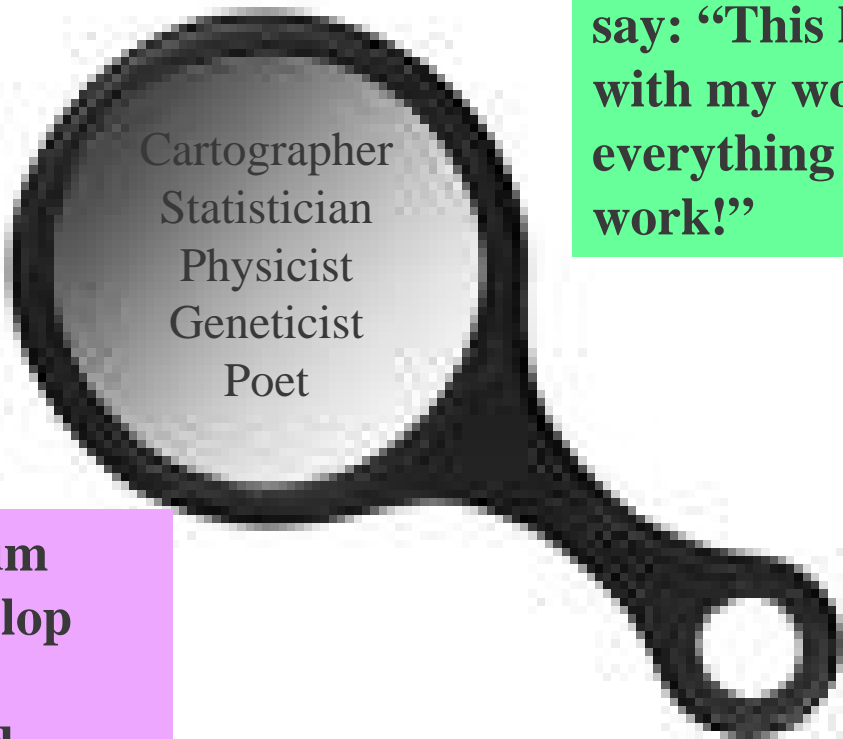
7. Ensure that students know when, where, and why to use knowledge, not just repeat it;
8. Help students practice fluency at least as much as accuracy, thereby aiding retrieval;
9. Help students focus on learning vs remembering;
10. Help students learn to teach themselves;
11. Encourage students to monitor their approach to problem solving and thinking;
12. Help learners routinely step back from problems and ask whether the knowledge and processes they are using are relevant and effective.



Does the Curriculum Mirror Expertise in a Field?

Are the content, processes and products defensible when we examine the discipline?

Would a disciplinarian access the curriculum and say: “This has nothing to do with my work” or “This has everything to do with my work!”



Cartographer
Statistician
Physicist
Geneticist
Poet

Does the curriculum help students develop expert knowledge, understanding and skills?

Does the curriculum focus on what matters in developing deep and complex understanding or does it concentrate on coverage?

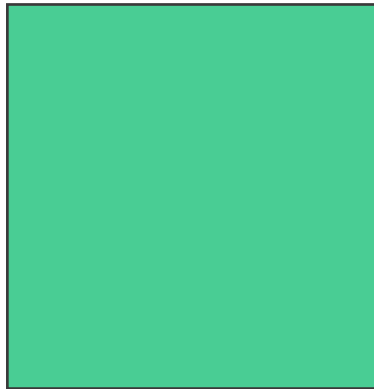
New IQ: Effort

“Underachievement among American youth is often blamed on boring textbooks, class size... We suggest another reason:...student failure to exercise self-discipline....American children have trouble making decisions to sacrifice short-term pleasure for long-term gain and that programs that build self-discipline may be the road to academic achievement.”

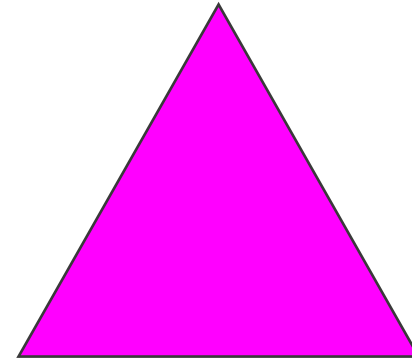


TALK IN 2s & 3s

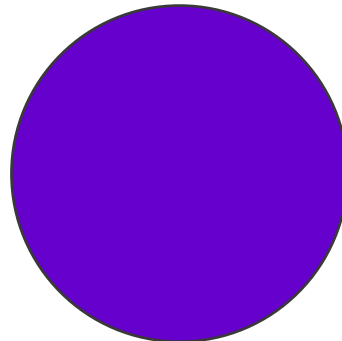
This **SQUARES**
with my beliefs



THREE POINTS
I want to remember



Here's what's going
AROUND
in my head

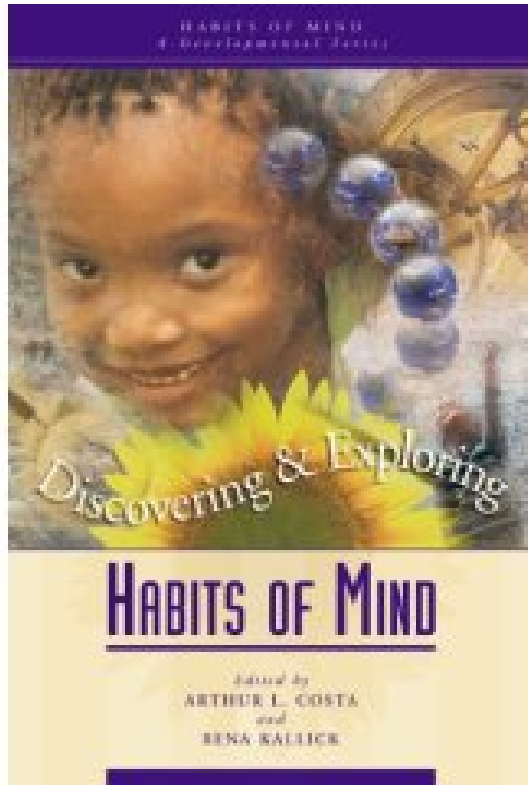


Presentation Topics

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- ✓ **What can classroom practitioners do to enhance the gifts and talents of all students, including those with high abilities?**



Habits of Mind



The Habits of Mind are "characteristics of what **intelligent** people do when they are confronted with problems, the resolutions to which are not immediately apparent." Costa, 2000, p. 21.

Habits of Mind



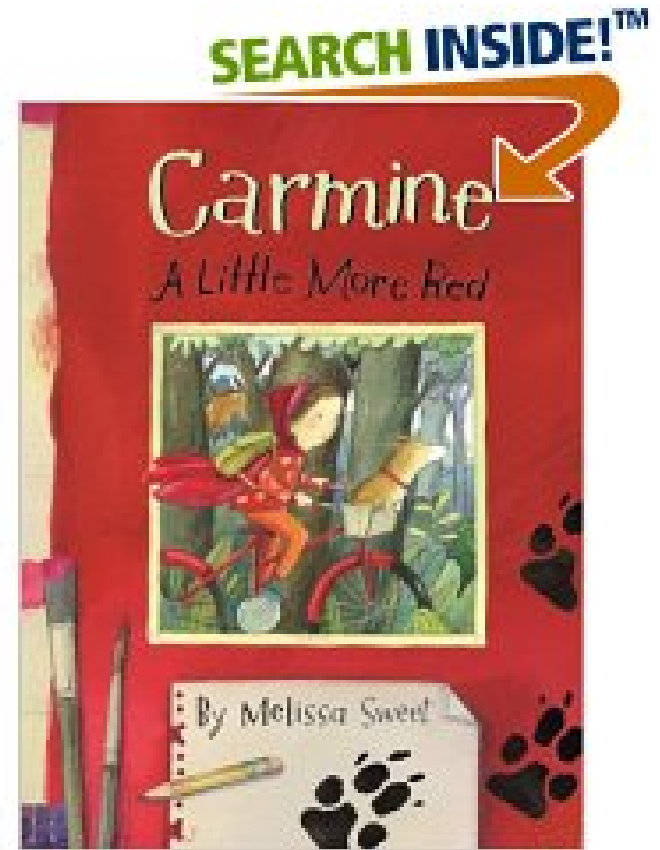
Persisting

Sticking with a problem, being able to sustain focus, organizing strategies for its solution

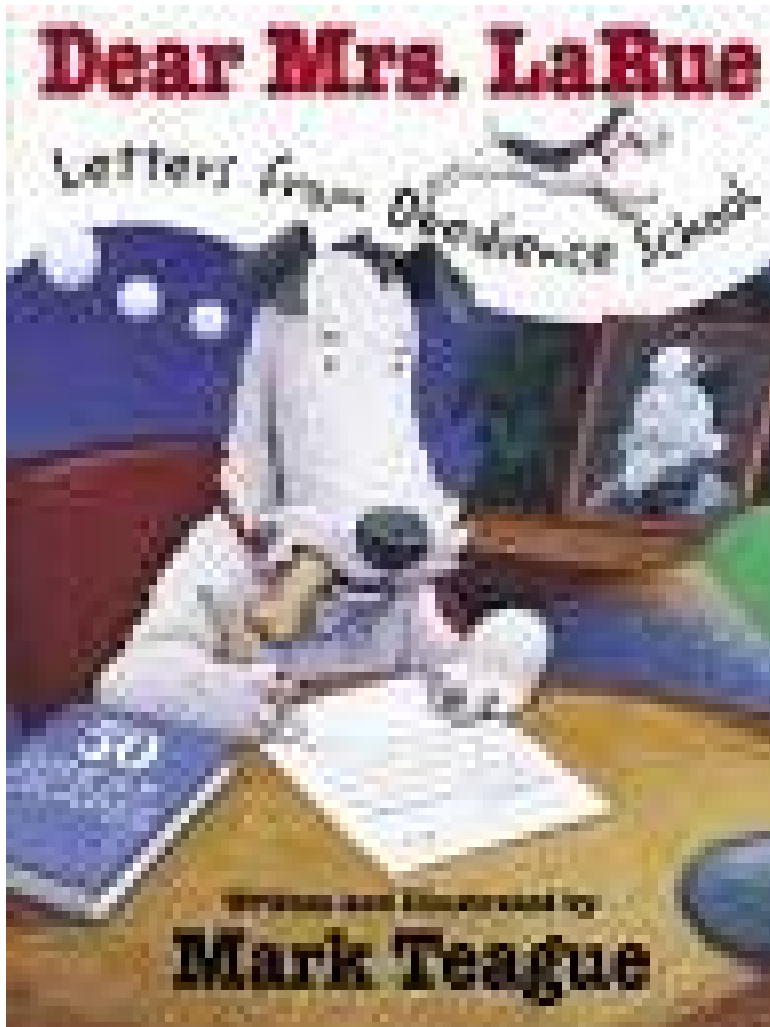


Clarity and Accuracy

The ability to make language precise and clear so that thinking is sharper...



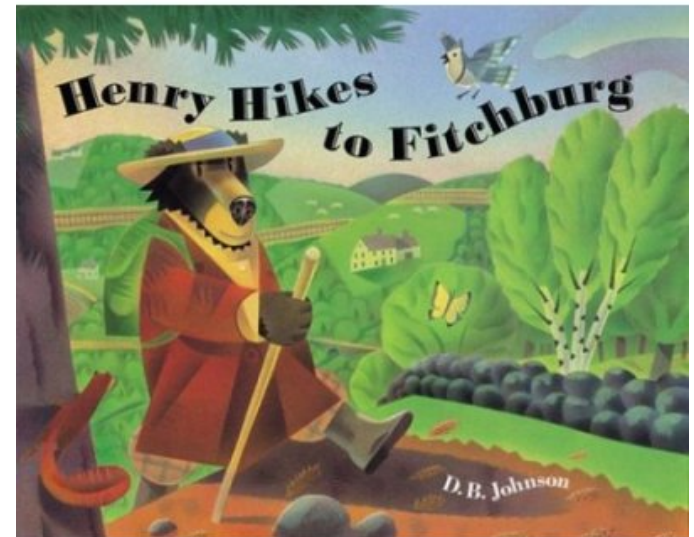
Managing Impulsivity



The ability to consider alternatives and consequences of several possible directions prior to taking action

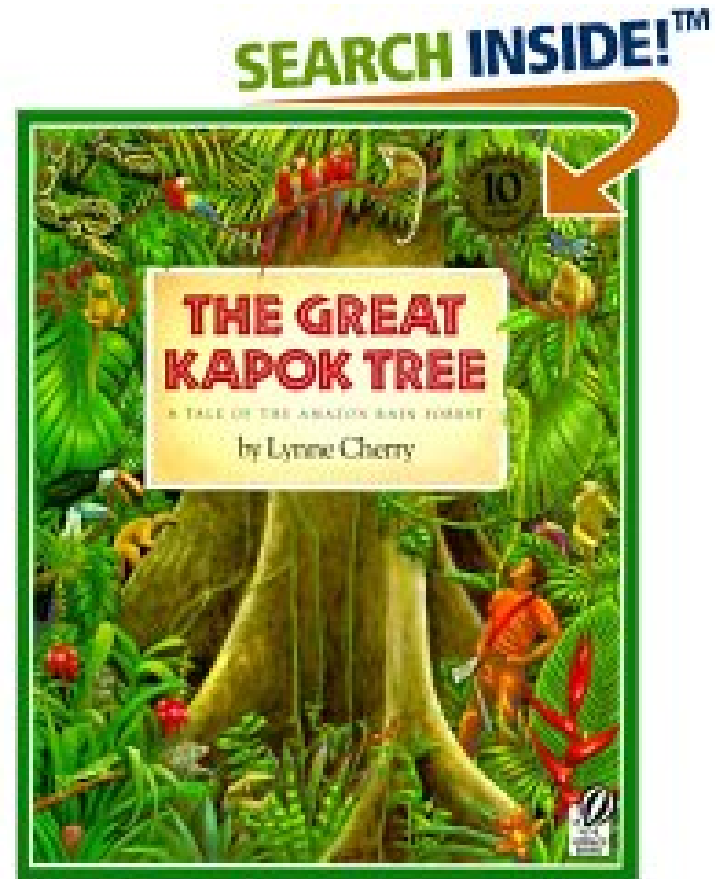
Gathering Data Through All The Senses

The capacity to be open, alert and acutely sensitive to all varieties of information from the environment



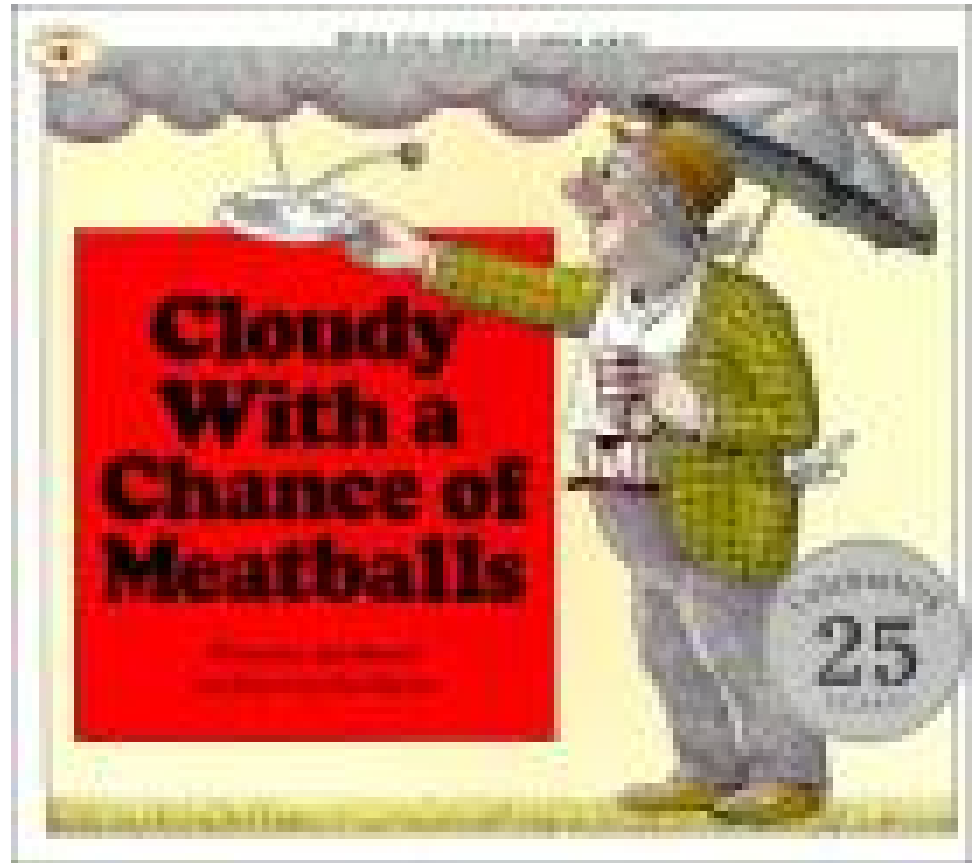
Listening With Understanding and Empathy

The ability to see through the diverse perspectives of others; to be able to gently attend to another person by paraphrasing another's words, building upon it, clarifying it, or giving an example...



Creating, Imagining

The capacity to generate novel, original, clever or ingenious products, solutions and techniques.



Thinking Flexibly

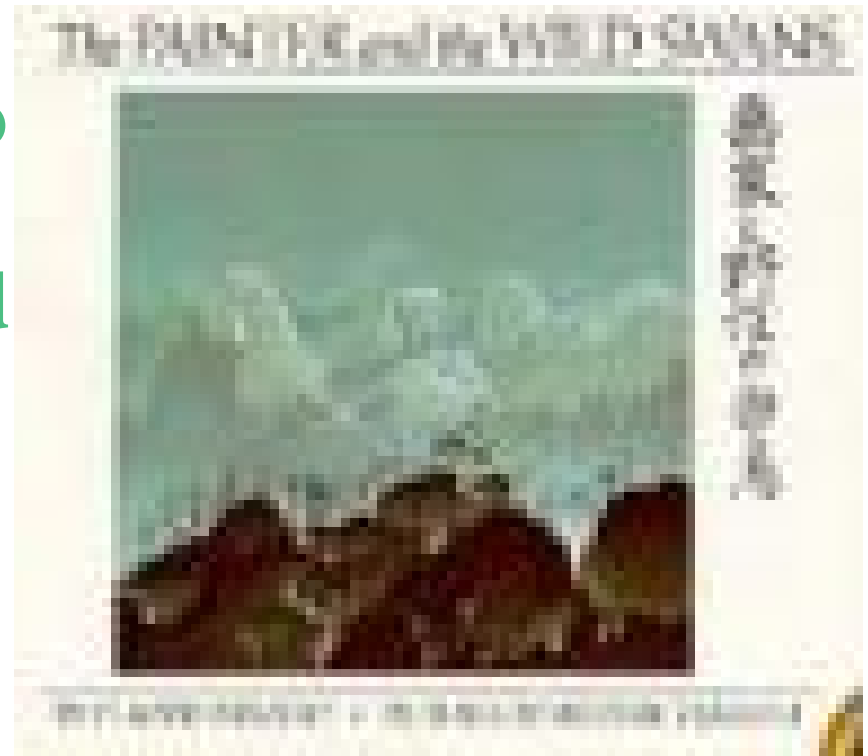
The ability to approach problems from new angles, consider diverse, even contradictory points of view; develop options and alternatives; discern patterns and themes.



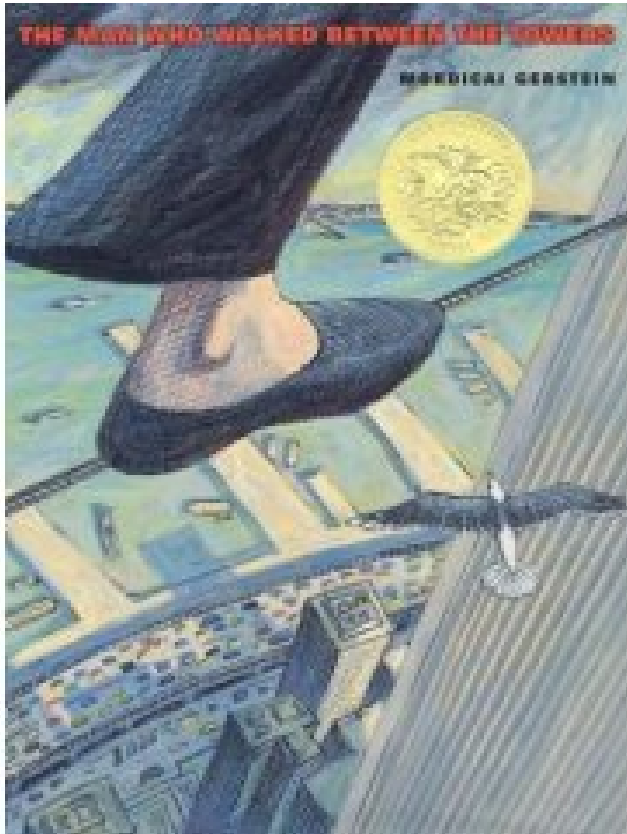
The Three Little Pigs

Wonderment and Awe

The capacity to seek problems and request enigmas from others; to see intricacies, orderliness, beauty, and serenity in the natural world; to be compelled, enthusiastic and passionate about learning, inquiring and mastering.



Metacognition

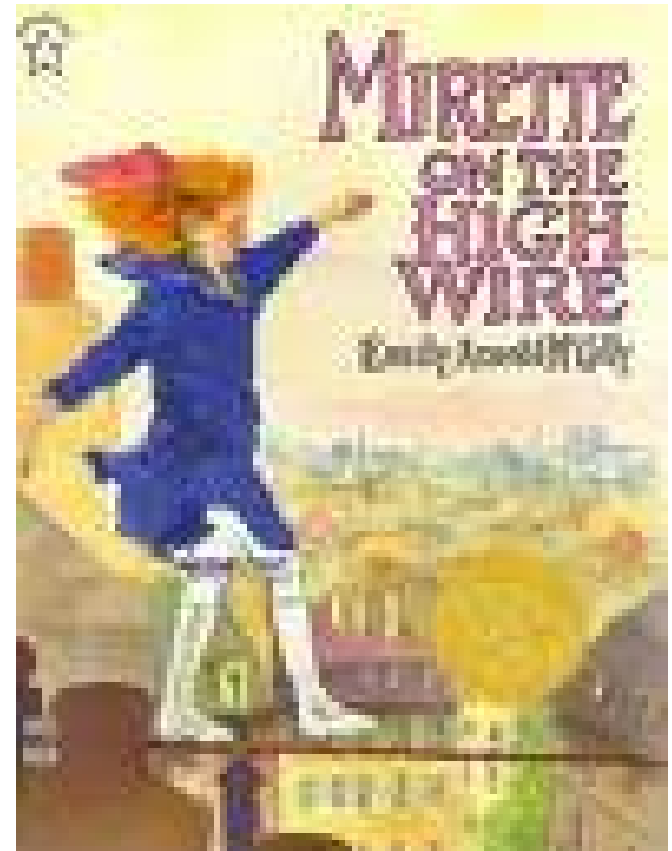


To be able to develop a plan of action, maintain that plan in one's mind over a period of time, reflect back on it and evaluate the plan and actions, make midcourse corrections and reflect back upon it upon completion.

The Man Who Walked Between the Towers

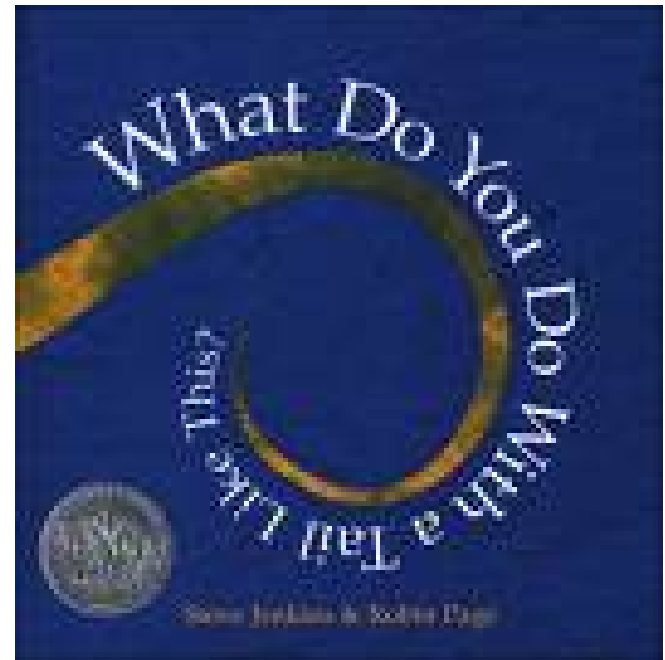
Taking Responsible Risks

The capacity to tolerate reasonable confusion, uncertainty and reasonable risks as part of the normal learning process; to view setbacks as interesting, challenging and growth producing



Accuracy

To be able to communicate accurately in both written and oral form using precise language, defining terms, sharp analogies and metaphors, and correct names; to use evidence and quantification accurately.



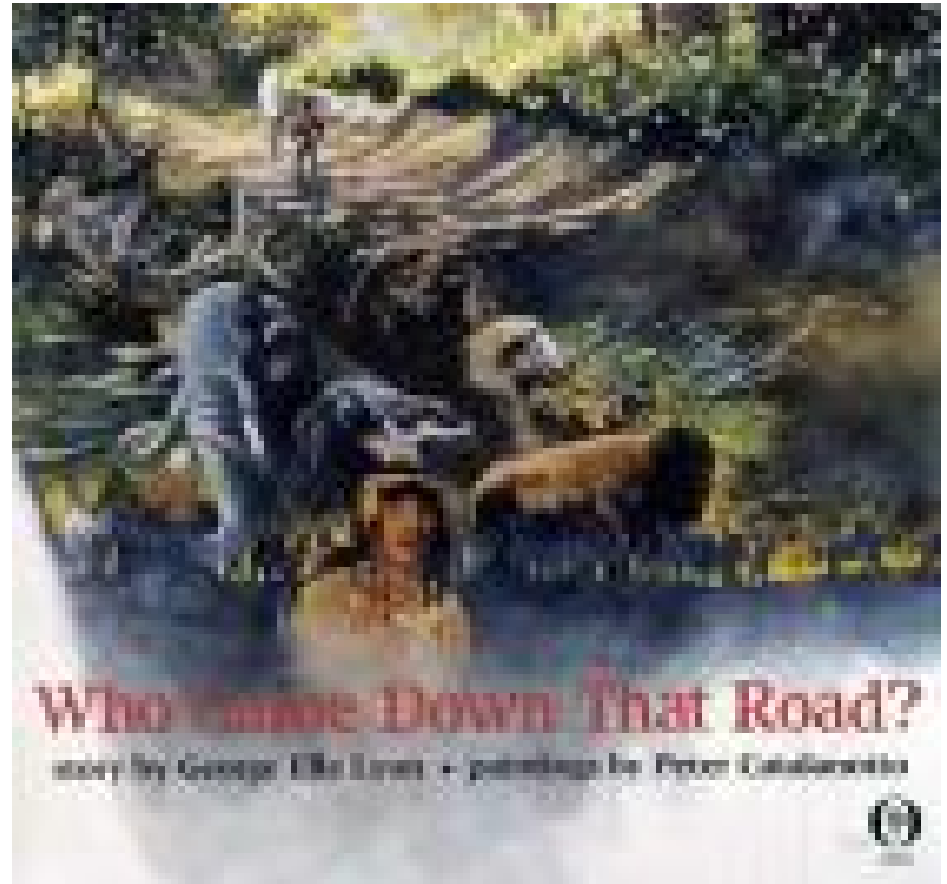
Finding Humor

The ability to perceive situations from an original and interesting vantage point; to thrive on finding incongruities and absurdities, ironies and satire; to be verbally playful when interacting with others; find humor in oneself.



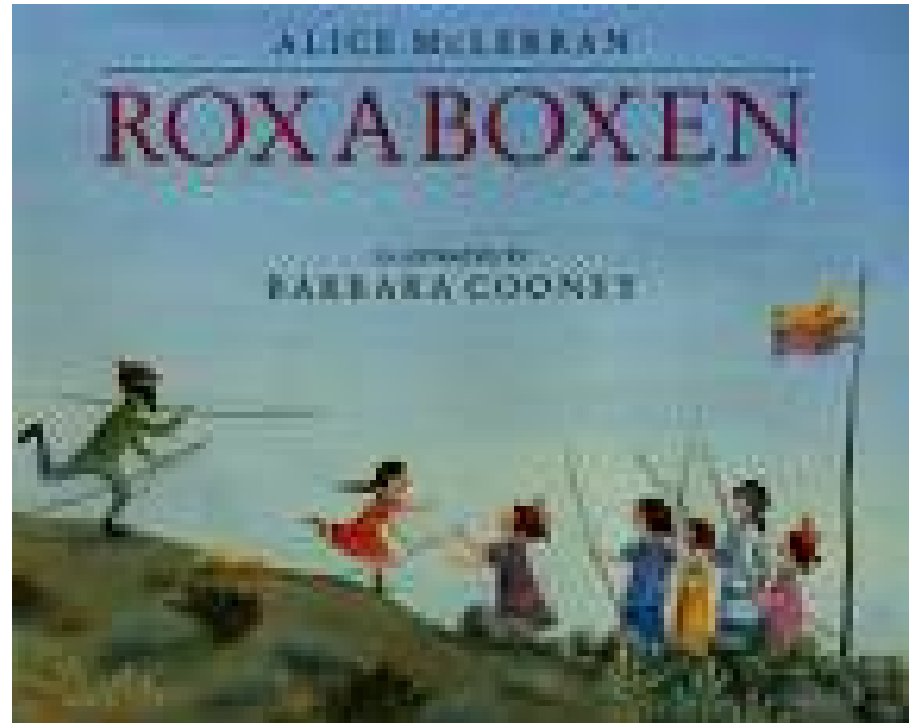
Questioning

The capacity to recognize discrepancies and phenomena in the environment and probe into their causes. To be able to find problems



Thinking Interdependently

A heightened ability to think in concert with others; to find ourselves increasingly more interdependent and sensitive to the needs of others.



Applying Past Knowledge to New Learning

To be able to call upon a vast storehouse of knowledge and experience as sources of data to support, theorize about, explain and solve new challenges; the ability to abstract meaning from one experience, carry it forth, and apply it to a novel situation.



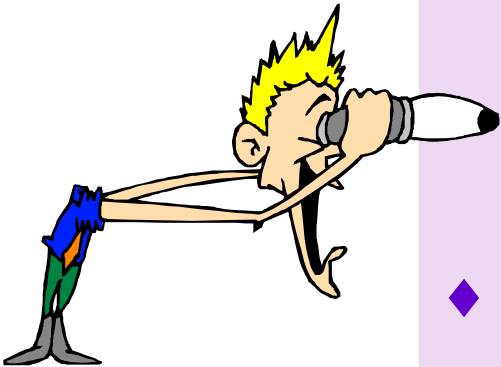
Learning Continuously



The capacity to seize problems, situations, tensions, conflicts and circumstances as new opportunities to learn; to have the humility to know what we don't know and the zeal to find the answer

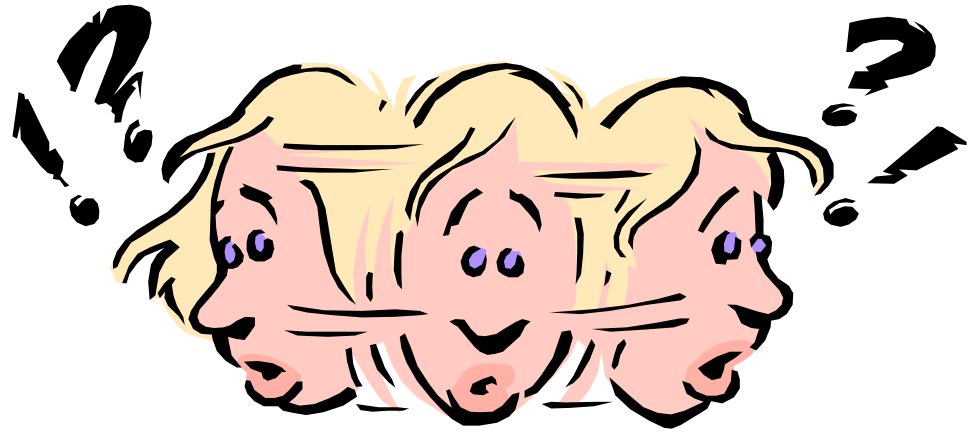
How Can Teachers and Parents Nurture Potential, Latent and Manifest Abilities & Talents?

- ◆ Proactive and systematic “talent spotting” and talent development
- ◆ Advocacy for high-quality, rigorous curriculum for all students that attends to developing expertise
- ◆ Advocacy for controlled, purposeful and systematic differentiation
- ◆ Provision of multiple entry points
- ◆ Other



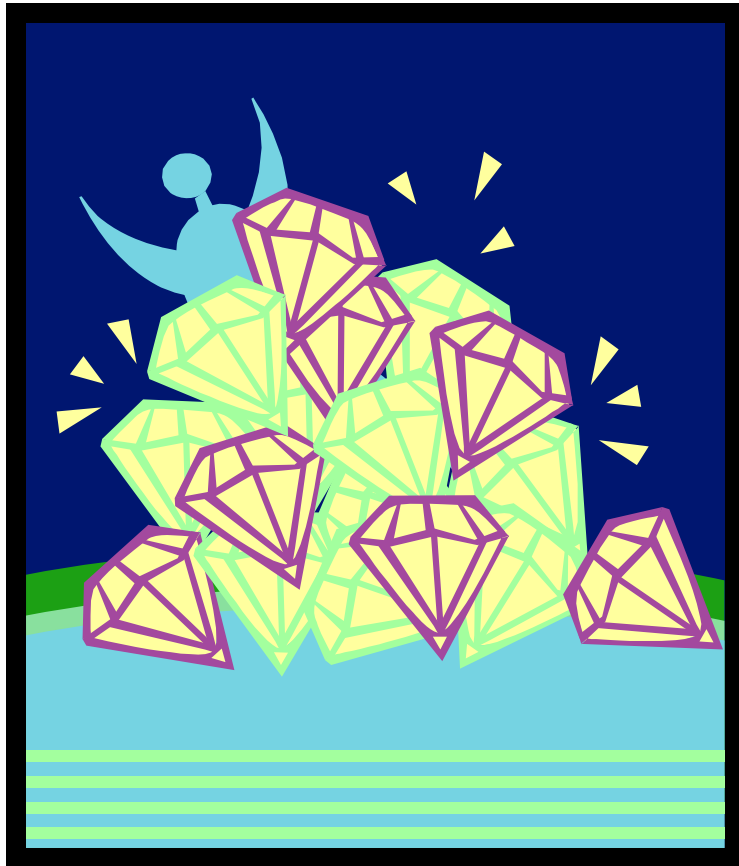
Warning.....

New learning:



- ◆ Causes cognitive dissonance
- ◆ Can cause some frustration, confusion, perturbation, or even anger
- ◆ Means that we need to find a way to accommodate new information into our existing scheme
- ◆ Causes a change in our **mental maps**

What do we believe giftedness is?



- ◆ **Manifest abilities and talents? Potential abilities and talents?**
- ◆ **General intellectual ability?**
- ◆ **Specific academic aptitude?**
- ◆ **Leadership ability?**
- ◆ **Creative & productive thinking?**
- ◆ **Visual and performing arts?**
- ◆ **Expertise?**
- ◆ **Other?**

Expertise: History

**Has no response;
dislikes**

1

Asks questions

2

**Likes to look at
historical things**

3

**Chooses projects
with an historical
slant**

4

**Chooses classes
about history**

5

**Seeks out friends
who love history**

6

**Thinks about
being
an historian**

7

**Makes plans for
professional
growth**

8

**Enjoys finding
unanswered
historical
questions**

9

Affinity

10

**Collaborative
research**

11

Self-actualization

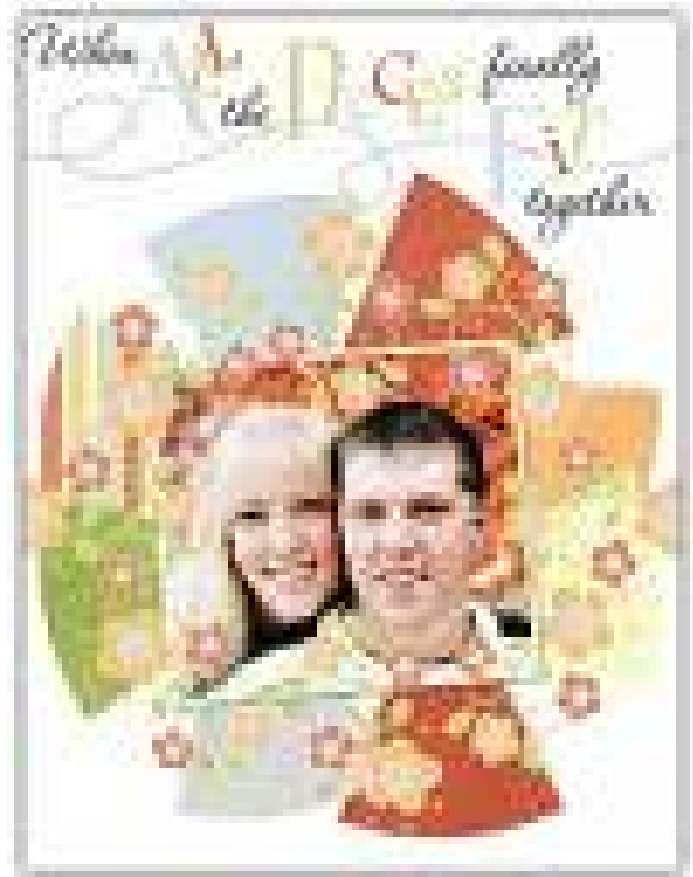
12

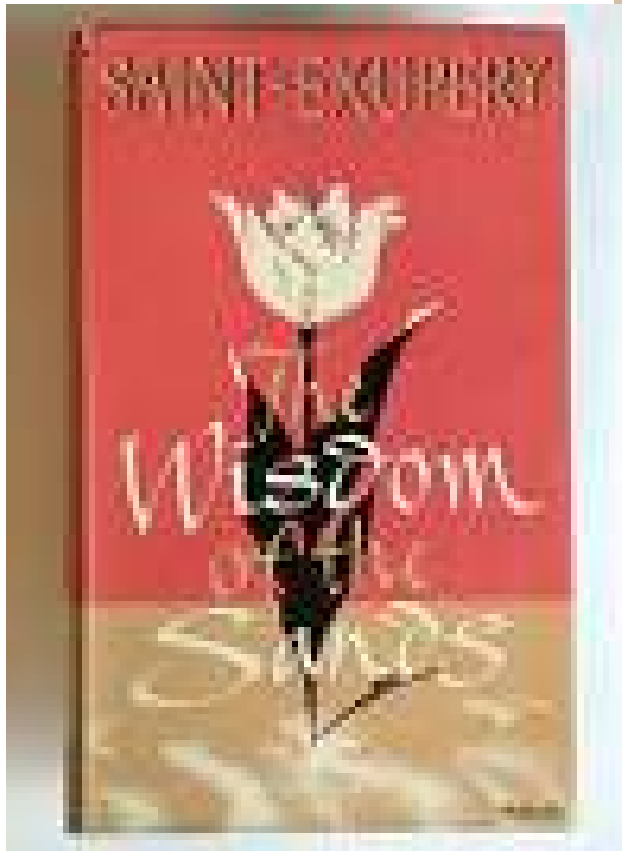
Forwarding Expertise in History

- 1** Find an entrée through the student's current interests
- 2** Read books, etc. about historical people and events
- 3** Investigate local and historical sites
- 4** Enlist the support of the library media specialist to get additional resources
- 5** Provide extension activities on projects that the student enjoys
- 6** Discuss the discipline with the student; explore course offerings; select appropriate courses
- 7** Engage the support of local resources
- 8** Locate shadowing and internship experiences
- 9** Locate a mentor; help the students become involved as a member in related organizations
- 10** Support student's intense work; locate resources; solicit professionals to give the student feedback
- 11** Locate grants and fellowships
- 12** Nurture the student's research; encourage publishing

The Fit

**How does this
emerging
conception of
“intelligences”
fit with
California
law?**





“Behind all seen things
lies something vaster;
everything is but a path,
a portal, or a window
opening on something
other than itself.”

Resources

Bloom, B. (1983). *Developing talent in young people*. New York: Ballentine Books.

Costa, A. & Kallick, B. (2000). *Habits of mind: Discovering and exploring*. Alexandria, VA: ASCD
Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.

Gardner, H. (1995). Reflections on multiple intelligences: Myths and messages. *Phi Delta Kappan*, 77 200-203, 206-209.

Gardner, H. (1999). A multiplicity of intelligences. *Scientific American*, 9 (4) 18-23.

Jensen, E. (1998). *Teaching with the brain in mind*. Alexandria, VA: ASCD

Neisser, U, Boodoo, G, Bouchard, T, Boykin, A. W., Brody, N., Ceci, S. J., Halpern, D. F., Loehlin, J. C., Perloff, R., Sternberg, R. J., Urbina, S. (1996). Intelligence: Knowns and Unknowns. *American Psychologist*, 51 (2), 77-101.

Renzulli, J. S. (1978). What makes giftedness? Re-examining a definition. *Phi Delta Kappan*, 60, 180-184, 261.

Sternberg, R. J. (1985). *Beyond IQ: A triarchic theory of human intelligence*. New York: Cambridge University Press.

Sternberg, R. J. (1999). Intelligence as developing expertise. *Contemporary Educational Psychology*, 24, 359-375.

Tomlinson, C.A., Kaplan, S. N., Purcell, J. H., Leppien, J. H., Burns, D. E., & Strickland, C.A. (2006). *The Parallel Curriculum in the Classroom: Book 1: Essays for Application Across the Content Areas, K-12*. Thousand Oakes, CA: Corwin Press.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.