Chapter 10: Teaching Effective Thinking Strategies
Chapter Ten Objectives

After completing Chapter 10, students should be able to do the following:

1. Provide a definition for thinking and differentiate among the various categories of thinking skills.
2. Explain creativity as a process and product and describe the four stages of creative thought.
3. Describe various difficulties that can hinder the creative process.
4. Define and describe metacognition.
5. Describe different approaches and activities that can be used in teaching thinking skills.
6. Explain the eight behaviors that exemplify "nonthinking".
7. Explain the role of the teacher and how modeling is used in the teaching of thinking skills.
Thinking Skills

• **Definition** of Thinking—Lipman (ASCD, 1990):
  - “Thinking is Processing Your Experiences in the World; to edit/Rearrange/Examine Experiences.”

• **Considerations** Teachers Should Make Before Teaching Thinking Skills are:
  1. Maturity Level of Students.
  2. Special Needs of the Subject.
Thinking Skills—Continued

Teaching Thinking Skills:

− Helps Increase Academic Test Scores on High Stakes Testing.
− Involves Students in Active Learning.
− Engages Students in Decision-Making and Problem Solving.
− Enables Students to: Read, Reflect, Make Predictions and become Strategic Learners.
Bloom’s Levels of Thinking

- Evaluation
- Synthesis
- Analysis
- Application
- Comprehension
- Knowledge
## Components of Bloom’s Taxonomy

<table>
<thead>
<tr>
<th>Level</th>
<th>Component</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td>Knowledge</td>
<td>• <strong>Recognize/Remember</strong> Key Facts—Define, Recall, Practice Drills.</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
<td>• <strong>Translate</strong>, Interpret and Explain <strong>Given</strong> Information.</td>
</tr>
<tr>
<td></td>
<td>Application</td>
<td>• <strong>Transfer</strong> Known Information to Applicable Situations.</td>
</tr>
<tr>
<td></td>
<td>Analysis</td>
<td>• Think about how to <strong>Divide</strong> a Whole into Component Parts.</td>
</tr>
<tr>
<td></td>
<td>Synthesis</td>
<td>• Take Parts of Previously Learned Information and <strong>Create</strong> Completely New Product/Whole.</td>
</tr>
<tr>
<td>High</td>
<td>Evaluation</td>
<td>• <strong>Judge</strong> Quality, Credibility, Worth and Practicality.</td>
</tr>
</tbody>
</table>
Critical Thinking

• Requires **Higher** Levels of Thinking:
  – Evaluation.
  – Synthesis.

• Based on Standards of:
  – Objectivity.
  – Consistency.

• **Skill that Can be Improved in Everyone** w/Effective Instruction.
Critical Thinking—Continued

• Lipman (1988b) Believes that Most Students:
  - Engage in Thinking that is **Simple** and
  - **Lacks** Standards.

• He Suggests that Students be Taught to Change their Thinking From:

|----------------------------|-----------------------------------------------|
Creative Thinking

• **Definition:**
  - Putting Together Information to Come Up w/a Whole New Understanding, Concept/Idea.

• **Characteristics** of Creative Thinking:
  - Takes People *Beyond Where They Have Ever Gone Before*.
  - Occurs as the Result of Questioning and Learning Beyond Gathering of Rote Information.
  - Teachers Need to Support and Encourage this Kind of Thinking in their Classrooms.
Four Stages of Creative Thought

1. Preparation—
   Collect Data,
   Identify
   Relationships &
   Construct a
   Hypothesis.

2. Incubation—
   the Idea Sits Until It
   Surfaces from the
   Unconscious to the
   Surface.

3. Illumination—
   this the *Aha* Stage, Eureka, I Have Got It!

4. Verification—
   Verifying and Testing the Idea.
Creative Thinking—Continued

**Difficulties Encountered** by Creative Thinkers:

- Finding Words to Describe Original Images.
- Letting the *Imagination Go* to Explore in a Free, Unstructured Way.
- Tendency to Over Analyze and Not Synthesize.
- Not Completing Analysis and Jumping to Synthesis.
- Fear of Expressing Creative, Ground-Breaking Ideas.
- Too Many Ideas at One Time and Difficulty Selecting One and Staying Focused.
Thinking About Thinking:

• In terms of Classroom, **Metacognition** is:
  - Teaching Students to Talk to Themselves Through Activities they are Engaged in, Asking Themselves/Each Other the Questions You Would Ask.
  - Helps Create Independent Learners.

• It includes:
Metacognition—Continued

Metacognition has Two Processes that Occur Simultaneously:

1. **Monitoring** Progress while completing an Activity.

2. Making **Changes** and **Adapting** as Problems Arise during an Activity.
### Metacognitive Strategies

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<tbody>
<tr>
<td>3. Estimating Total Time for the Completion of the Project.</td>
<td>7. Utilize Outlining, Mnemonics, Diagramming etc. to Facilitate Learning.</td>
<td>11. Keeping Concentration and Motivation High.</td>
</tr>
</tbody>
</table>
### Table 10.1 Thinking Skills

<table>
<thead>
<tr>
<th>Concept</th>
<th>Description</th>
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<tbody>
<tr>
<td>Thinking</td>
<td>The act of withholding judgment to use knowledge and experience in finding new information, concepts, or conclusions</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>The ability to analyze complex situations critically, using standards of objectivity and consistency</td>
</tr>
<tr>
<td>Creativity</td>
<td>The capacity for producing imaginative, original products or ways of solving problems</td>
</tr>
<tr>
<td>Metacognition</td>
<td>The skill of thinking about thinking</td>
</tr>
</tbody>
</table>
## Thinking Skills Instruction

### Two Approaches to Teaching Thinking Skills:

<table>
<thead>
<tr>
<th>1. Separate Approach — Thinking Skills Taught as a Separate Subject.</th>
<th>2. Infusion Approach — Thinking Skill and Immediately Utilized in the Regular Curriculum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Rationale for Teaching it Separately is Students <strong>Lack</strong> the Thinking Skills Necessary.</td>
<td>* Immediate Transfer of the Thinking Skill to a Relevant, Meaningful Learning Experience.</td>
</tr>
<tr>
<td>* Lessons can be Used to Teach Thinking Skills and the <strong>Focus</strong> Could be on Learning the Skills and Nothing Else.</td>
<td>* Relevance is Established.</td>
</tr>
<tr>
<td>* Practice can be Supported/Scaffold by the Teacher through Modeling and Active Engagement.</td>
<td>* Immediate Application.</td>
</tr>
<tr>
<td>* Evaluation of Understanding can be Carried Out Easily.</td>
<td>* Feedback for both Thinking Skills and the Curriculum/Content Area.</td>
</tr>
</tbody>
</table>
Critical Thinking Instruction

• Two **Critical Areas** of Critical Thinking are:
  1. Identifying and Challenging Assumption—unquestioned rules assimilated in value systems.
  2. Exploring and Imagining Alternatives.

• **Critical Thinking Develops:**
  1. Open-Mindedness.
  2. Willingness to Explore Other Possibilities.
  3. Ability to Examine Old Ideas in New Ways and Consider Alternatives to Old Ways of Thinking.
Critical Thinking Instruction—Continued

- Direct Instruction with **Explicit** Modeling:
  - Teacher Should Model Open-Mindedness.
- Opportunities for Students to Engage in Critical Thinking Should be Provided:
  - Choice in Assignments/Projects.
  - Shared-Responsibility in Deciding Rules, Trips, Solutions to Class Problems.
  - Structured Lessons Should be Scheduled Regularly:
    - Small Group Work on *Loaded Questions* Followed by Classroom Discussion.
    - Carefully and Slowly w/Respect Help Students **Broaden** their Perspective Beyond the Confines of their Own Culture.
    - Remember the Goal is to *Not to Destroy but to Refine*.
### Nonthinking Behaviors that Adversely Affect Critical Thinking

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Description</th>
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<tbody>
<tr>
<td>Impulsiveness</td>
<td>Leap before they look. Fail to Consider Consequences of their Actions.</td>
</tr>
<tr>
<td>Overdependence on the Teacher</td>
<td>Inattentive and Rely on the Teacher to Repeat Information.</td>
</tr>
<tr>
<td>Inattentive Behavior</td>
<td>Students do not Stay on Task and their Attention Span is Short.</td>
</tr>
<tr>
<td>Restless Rusher</td>
<td>They Concentrate Only on Turning in the Work.</td>
</tr>
<tr>
<td>Dogmatic, Assertive Behavior</td>
<td>Think that their Perceptions are the Only Correct Ones.</td>
</tr>
<tr>
<td>Rigidity, Inflexibility of Behavior</td>
<td>Reluctant to Give Up Old Strategies that Worked Well in the Past.</td>
</tr>
<tr>
<td>Fearful, lack of Confidence</td>
<td>Afraid to Express Themselves and Usually Won’t Seek Extra Help.</td>
</tr>
<tr>
<td>Responsibility Forfeiture</td>
<td>Want the Teacher to Supply the Correct Way to Complete Tasks and Shift Responsibility to Teacher.</td>
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# Chapter 10: Teaching Effective Thinking Strategies

## Thinking Skills that Offset Nonthinking Behaviors

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<td>13. Analysis</td>
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</tbody>
</table>
Reflection

Based on your Reading of this Chapter, how would you help this Student Develop **Metacognitive** Skills to better **monitor** his **reading comprehension**?
The End!