**THE THINKING CLASSROOM:**
**LEARNING AND TEACHING IN A CULTURE OF THINKING**

By Shari Tishman, David Perkins and Eileen Jay
Allyn and Bacon, 1995

---

- Simply having a skill is no guarantee that you will use it. In order for skills to become part of day-to-day behavior they must be cultivated in an environment that values and sustains them.
- Six dimensions of thinking
  - Language of thinking: terms and concepts used in the classroom to talk about thinking, and how the language used by the teacher and students in the classroom can work to encourage more high-level thinking
    - The words in a language that refer to mental processes and mental products
    - Words that describe and evoke thinking
  - Thinking dispositions: students' attitudes, values, and habits of mind concerning thinking, and what the classroom environment can do to promote productive patterns of intellectual conduct.
    - Inclinations and habits of mind that benefit productive thinking
    - Ongoing, abiding tendencies in thinking behavior exhibited over time across diverse thinking situations
  - Mental management: (Metacognition) concern students' thinking about their own thinking processes, and how the classroom culture can encourage students to take control of their thinking more creatively and effectively
    - The art of reflecting on and guiding one's own thinking processes.
    - Metacognition
  - Strategic spirit: special kind of attitude encouraged in a culture of thinking, one that urges students to build and use thinking strategies in response to thinking and learning challenges
    - An enthusiasm for systematic thinking
    - The tendency to invent and use thinking strategies in response to challenging situations
  - Higher order knowledge: looks beyond the factual knowledge of a subject matter and focuses on knowledge and know-how about the ways of solving problems, using evidence and doing inquiry in a discipline
    - The knowledge and craft of solving problems and managing tasks in a discipline
    - The knowledge and craft of evidence and explanation in a discipline
    - The knowledge and craft of discovery and invention in the discipline.
  - Transfer: concerns applying knowledge and strategies from one context to another, and exploring how seemingly different areas of knowledge connect to one another.
    - Acquiring knowledge in one context and putting it to work in others
    - Applying thinking strategies and dispositions in many different contexts.
    - Connecting seemingly different areas of knowledge, seeing how they inform one another.
- Culture-based teaching involves somewhat different teaching techniques than the topic-based teaching techniques that might be used to teach students factual knowledge.
- Enculturation typically occurs in four broad ways:
  - Models of the culture
  - Explanation
  - Interaction
  - Feedback
- Use precise language rather than broad terms to describe thinking.

- Educators and textbook writers tend to simplify language, in order to make the presentation of difficult material more attractive and accessible to children. Yet doing this prevents learners from receiving the important linguistic cues they need, in order to guide and manage their own thinking.
- The language of thinking helps students organize and communicate their own thinking more precisely and intelligently
- The language of thinking communicates and reinforces standards for thinking.
- Feedback in a language of thinking happens much the same way feedback occurs in other language learning: through expert rephrasing of novice talk.
- Bottom lines for enculturating a language of thinking
  - Model and exemplify a language of thinking.
  - Provide explanations about the purpose and use of language of thinking terms and concepts
  - Encourage interaction
  - Ensure encouraging and informative feedback.
- Understanding is often acquired through practice, rather than before practice.
- Presenting information
  - Identify key language of thinking terms in the subject matter
  - Plan when to introduce and define them
  - Use them often
- Asking students questions
  - Plan which language of thinking words you want to emphasize
  - Jot down a few questions ahead of time that include those words
  - As you question students, try to avoid using overly broad works, like think and feel
- Human performance is comprised of abilities plus dispositions.
- Good thinkers can be distinguished because they use their inherent intellectual powers in productive and probing ways. Good thinkers can be characterized by their thinking dispositions – their abiding tendencies to explore, to inquire and probe into new areas, to seek clarity, to think critically and carefully, and to be organize in their thinking.
- Dispositions cannot be transmitted like a piece of knowledge Rather they must be cultivated like a plant, with constant nurturing so they can develop fully and grow strong.
- Five dispositions for good thinking
  - The disposition to be curious and questioning: the urge to question, inquire, wonder, pose problems, probe further, look beyond what is given.
  - The disposition to think broadly and adventurously: the impulse to explore alternative points of view, be open-minded, be flexible, try new things and ideas, be playful.
  - The disposition to reason clearly and carefully: the desire to seek clarity, gain understand, be precise be thorough, remain alert to possible error.
  - The disposition to organize one's thinking: the urge to be orderly and logical, be planful, and think ahead, approach things in a calculated and methodical fashion.
  - The disposition to give thinking time: the tendency to devote time and effort to thinking.
- Joint Understanding
  - Challenge students to evaluate their thinking
  - Discuss the pros and cons of particular thinking dispositions
  - Establish joint understanding of the value of thinking dispositions
  - Explicitly set expectations for good thinking
- Artifacts
  - Create visual artifacts, such as lists or posters, as reminders of thinking dispositions.
  - In written assignments, plant reminders to use thinking dispositions.
  - Give feedback when correcting papers or written work.

- Constructive Evaluation
  - Have students evaluate one another's thinking in a supportive way.
  - Encourage students to be constructive, not critical.
  - Structure cooperative learning situations; encourage students to learn from each other and provide mutual support.
- Thinking Alarms
  - Lazy thinking: Be curious and questioning
  - Narrow thinking: be broad and adventurous
  - Messy thinking: be clear and careful
  - Scattered thinking: Be organized
  - Hasty thinking: Give thinking time
- Reciprocal Teaching: After reading a paragraph together, the teacher initially models the process, eventually turning it over to students. When students first undertake the process, the teacher coaches them extensively. Then, as students become more proficient, the teacher turns more of the task over to them. At different times, the teacher and students take turns playing the role of the teacher (the one who works through the process); hence, the term Reciprocal Teaching.
- Surprisingly, although mental management is to a large extent a learned ability, it is rarely directly taught in school. Perhaps this is because traditional schooling tends to focus children's attention exclusively on thinking products outside the self – texts, facts, and the right answers – and rarely provides learners with opportunities to reflect on their own inner thinking processes. But neglecting to teach mental management does a disservice to students: research shows that students who have opportunities to develop their metacognitive abilities tend to perform better in many learning situations.
- Mental management cultivates cognitive resourcefulness.
- Mental management promotes responsible and independent thinking. An important part of being a thoughtful adult is the ability to set one's own goals and standards, rather than mindlessly following in others' footsteps.
- Mental management fosters strategic thinking and planfulness.
- Mental management is a learnable aspect of intelligence.
- FourThought
  - Get ready
    - Taking a moment of quiet time
    - Visualizing the upcoming topic of thought
  - Set Goals and Standards
    - Setting goals
    - Using standards
  - Keep track of thinking
    - Periodically monitoring how well you are meeting your goals
    - Remembering to play the role of mental manager
  - Reflect
    - Review and evaluate thinking
    - Look for improvements
- Honor and expect time will be needed for reflection.
- End quiz with metacognitive questions (e.g. What part of your thinking on this quiz went well? What part was difficult?)
- A thinking strategy is an explicit and articulate plan for how to thread one's way through an intellectually challenging situation.
- When strategic thinking is appropriate, teachers can ask students for a strategy, rather than asking for an immediate answer.

- The strategic spirit helps students counter a significant obstacle to good thinking: strenuous but directionless effort.
- The strategic spirit energizes learning.
- The strategic spirit fosters independent thinking.
- The strategic spirit has a high payoff in real-life settings, particularly as leaners become adults.
- Strategy building blocks

| When… | Strategy Step | Tactics |
|---|---|---|
| When you need to be clear about what you are doing or where you are going… | STATE…<br>Either the problem, the situation or your goal(s). | ▪ Identify the different dimensions of the situation<br>▪ Identify the parts of the situation you will focus on<br>▪ State precisely what you want to change or what you want your outcome to be<br>▪ Be specific! |
| When you need to think broadly about something… | SEARCH…<br>For ideas, options, possibilities, purposes, features assumptions, causes, effects, questions, dimensions, hypotheses, facts, or interpretations. | ▪ Brainstorm<br>▪ Look for different kinds of ideas.<br>▪ Look at things from different points of view<br>▪ Look for hidden ideas<br>▪ Build on other people's ideas<br>▪ Use categories to help you search |
| When you need to assess, rate, or decide something… | EVALUATE<br>Options, plans, ideas, theories or objects | ▪ Look for lots of reasons<br>▪ Consider the immediate and long-term consequences<br>▪ List all the pros and cons, paying attention to both<br>▪ Try to be objective; avoid bias.<br>▪ Use your imagination: how will it affect others? |
| When you need to think about the details of something | ELABORATE…<br>Possibilities, plans, options, hypotheses, or ideas | ▪ Make a detailed plan: Say what will happen at each step<br>▪ Visualize what it will look/fell/seem like in detail<br>▪ Ask yourself: What resources will be used?<br>▪ How will it happen?<br>▪ Who will be affected<br>▪ How long will it take? Think about the different parts<br>▪ Draw a picture or write a description; imagine telling someone about it |

- Most instruction occurs at the "content" level, focusing on the facts, algorithms, and skills of the discipline in question.
- Higher order knowledge holds keys to a genuine understanding of and involvement in a discipline.
- Students commonly have higher order misconceptions about disciplines that pose barriers to their progress.
- An abundance of research over the past twenty years has shown clearly that Piaget, a man of many insights, overgeneralized. All sorts of abstract ideas prove quite accessibly to young children, providing 1) they are not too complex, and 2) they are well rooted in the child's experiences. In other words it is not abstractness per se that poses problems, but complexity and detachment form experiences.
- Transfer cannot be counted on to occur spontaneously.
- Language of Thinking Vocabulary

| | | | |
|---|---|---|---|
| Advance | Deliberate | Intuit | Solve |
| Affirm | Demonstrate | Investigate | Speculate |
| Allege | Deny | Judge | State |
| Analyze | Derive | Justify | Study |
| Appraise | Detect | Know | Submit |
| Appreciate | Determine | Maintain | Suggest |
| Apprehend | Disbelieve | Meditate | Suppose |
| Ascertain | Discern | Muse | Surmise |
| Assert | Disclaim | Observe | Survey |
| Assess | Discover | Opine | Suspect |
| Assume | Discredit | Perceive | Theorize |
| Attest | Discriminate | Ponder | Think |
| Aver | Dispute | Posit | Understand |
| Believe | Dissect | Postulate | Verify |
| Calculate | Dissent | Presume | Warrant |
| Cerebrate | Divine | Probe | Weigh |
| Claim | Doubt | Process | |
| Cognize | Elucidate | Profess | |
| Comprehend | Entertain | Propose | |
| Concede | Establish | Propound | |
| Conclude | Estimate | Prove | |
| Confirm | Evidence | Question | |
| Conjecture | Examine | Rate | |
| Consider | Explain | Realize | |
| Construe | Explore | Reason | |
| Contemplate | Fashion | Rebut | |
| Contend | Glean | Reckon | |
| Contradict | Grasp | Recognize | |
| Contravene | Grope | Recollect | |
| Convince | Guess | Reflect | |
| Corroborate | Hypothesize | Remember | |
| Criticize | Imply | Research | |
| Decide | Infer | Resolve | |
| Declare | Inquire | Review | |
| Deduce | Inspect | Ruminate | |
| Define | Interpret | Scrutinize | |