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ABSTRACT
              The emphasis on promoting thinking skills in the
classroom has fostered several trends, tendencies, and tensions. This
movement has taken three directions: the teaching of thinking,
teaching for thinking, and teaching about thinking. In the first,
thinking is regarded as a process of developing a set amount of
skills. The proponents of this approach are primarily state
departments of education. The second fosters thinking skills in the
specific context of school curricula. In the third, students are
encouraged to become more conscious of their own mental processes as
they study or solve problems. Students learn how to predict the
outcome of their performance, to plan ahead, to apportion time and
cognitive resources, and to monitor and edit more efficiently their
efforts to learn. This process is also known as metacognition.
Tensions arise in both students and teachers as a result of this
emphasis on thinking. Students tend to be passive and resist mental
exertion, while teachers feel they have too much to do and too little
support to nurture thinking in the classroom. Adapting some of the
features of the National Writing Project into a program on thinking
can alleviate some of these problems. To guide the kind of thinking
processes selected for the program, five principles should be
followed: (1) teach active learning, (2) articulate thinking, (3)
structure thinking activities systematically, (4) motivate learning,
and (5) evaluate continuously. (SRT)

Thinking Skills: A Return

to the Content Area Classroom

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Putting Thinking into the Classroom: Trends,
Tendencies and Tensions

As Roger Farr said in a recent address before the
International Reading Association, aware educators are into the
"HOTS" - Higher Order Thinking Skills. Am I fostering Higher
Order Thinking in my classes? How do I know if I'm doing it or
not? are common questions voiced by teachers in faculty rooms, at
curriculum meetings, at in-service or conference sessions.

This paper will (1) examine the trends, tendencies and
tensions that this emphasis on promoting thinking in the classroom
has fostered and (2) suggest a plan of action for content area
teachers.

What factors are contributing to the interest in thinking?
Analysts claim this interest springs from a variety of sources.
There is a growing national dissatisfaction with children's lack
of ability in this area. National studies reveal we are a nation
whose children are physically unfit; a growing consideration is
that we are also a nation whose children are lamentably
cognitively unfit. The "rising tide of mediocrity" focuses
attention on the failure of schools to produce mathematicians and
scientists. "Independent and imaginative thinking are lacking,"
quote corporate funded reports about high school graduates.

Teachers tired, or bored with the basic skills approach are searching for more. Like Shakespeare they have a sense of the nobility of the child in front of them. "What a piece of work is man. How noble in reason, how infinite in faculties." At times, it is difficult to flesh out that sense, looking at the kids' punk hairdos. earring laden ear lobes, and the jumble of rumpled layered clothing, blinding as it is, in color and design. Despite this, national educational groups, and specifically the educators they represent, are committing their energies to fostering kids' thinking beyond sartorial concerns.

Teachers believe. Like Sam Levenson (1966) in his book, Everything but Money, teachers want to believe:

> that each child arrives on earth with a message to
> deliver to mankind. Clinched in his little fist is
> some particle of yet unrevealed truth, some missing
> clue, which may solve the enigma of our destiny. He
> has a limited amount of time to fulfill his mission and
> he will never get a second chance - nor will we. He
> may be our last hope. He must be treated as top-sacred
> (p. 201).

Teachers want to give their students the opportunity to discover their unique message, to think about it and to plan for the time when they will deliver it. Last year, Bill Moyers visited Newark, NJ to find out from ghetto adolescents why they were begetting and bearing babies at such a tender age and why their lives seemed so meaningless. Their responses were simple

and uncomplicated. Yet the reality is complex. Advanced
, Jucation and careers are remote possibilities. There is no
hope. Without hope, there can be no thought how to constructively
overcome these barriers. Teachers want to provide the arena for
thought - thought about social concerns, about academic issues.
What's happening specifically to transform this desire into
action?

Trends

There is definitely a major trend to foster thinking in the
classroom. What we'll call minor trends or tendencies are the
specific directions instruction in thinking is taking.

Tendencies

Ron Brandt, editor of Educational Leadership, succinctly
summarized the tendencies, meaning the direction or course of
action, to incorporate thinking into the curriculum. There are
three directions clearly operating. The focus is either THE
TEACHING OF THINKING, or TEACHING FOR THINKING, or TEACHING ABOUT
THINKING.

THE TEACHING OF THINKING. In a curriculum devoted to this
approach, educators view thinking as a process of developing a set
amount of skills. The reasoning goes, if students are exposed to
X amount of skills, they will become thinkers. State Departments
are the greatest proponents of this approach In the Back to the
Basics Movement, we saw 39 states adopt what Eric Cooper (1986)

calls a "fractionated, atomistic approach" (p. 5). Now that the
trend is teaching for thinking, we see a continuation of this
practice. For example, the New Jersey Board of Higher Education
established the Basic Skills Assessment program in 1977 to assess
the basic skills of all college students entering the state's
public colleges and universities. Skills the program is testing
include such areas as: mental acts, cognitive states, reasoning
skills and inquiry skills. Oregon has just announced its Teaching
for Excellence program (May 1986) which has targeted 1992 as the
year mandating all Oregon seniors must have demonstrated
proficiency in thinking skills before they can graduate.

A number of process-oriented programs personify this
approach. These programs with such titles as Problem-Solving and
Comprehension: A Short Course in Analytical Reasoning;
Instrumental Enrichment: An Intervention Program for Cognit⁺ 'e
Modifiability; The Productive Thinking Program: A Course in
Learning to Think; the CORT Thinking Program are not dependent on
the acquisition of subject matter but rather on the teaching of
general processes needed for reasoning and problem-solving.

TEACHING FOR THINKING - In contrast to the preceding orientation
of school programs, others foster thinking skills in the specific
context of school curricula. Some like Barry Beyer (1985)
incorporate an interactive model, where skills are taught in
isolation or embedded in the subject matter of an academic course
depending on the student's awareness of the skill. If new to the

experience, the skill is taught subject matter-free, preferably using students' daily life experiences. If known, it is reinforced and applied to other content areas. A look at his model may clarify this approach. Beyer directs teachers to use a five step process:

1. Introduce the skill to be taught by describing an example of it in action or by having the students acutally do it.

2. Explain specific steps and rules for executing the skill

3. Demonstrate how the skill works with the content being studied.

4. Working in pairs or triads, students apply the skill procedures and rules to data similar to - but not the same as - that use in the demonstration.

5. Students restate and explain the basic components of the skill as they have used them so far.

Herber (1978) addresses the issue with the principle: Content determines process. Whatever skills are necessary to deal with the content are those that are emphasized, nurtured and reinforced. Like reading, thinking is viewed in this alternate view as greater than the sum of "teachable skills." It implies that thinking is a meaning-deriving process and places skills within that context. Goodman and Burke (1972) talking about skills explain:

You cannot know a process by listing its ingredients

or labeling its parts; you must observe the effect of

parts as they interact with each other. Acting

together, the parts compose an entity which is

uniquely different from the identity of any of the

separate parts. Flour, sugar, baking soda, salt, eggs

and water can all be listed as ingredients of a cake.

Yet the texture, weight, flavor and moistness of a

cake cannot be related directly to any one of the

ingredients, but only to the quality and result of the

int raction (p. 95).

In a recent publication by ASCD, a number of educators from
researchers to teachers were asked to respond to the question "Is
it advisable to teach generic thinking skills (such as comparing)
apart from subject matter content? To a fault, they all supported
teaching skills in relation to a given content.

Resnick (1986), a researcher says "If you teach test-like
skills by themselves, you get improved scores on those skills, and
that's all . . . Most of my cognitive researcher colleagues and I
share the intuition that you can get transfer by embedding
reasoning skills in subject matter or real-life situations, but it
will not be easy to prove it" (p. 4). Debbie Walsh, (1986) AFT,
writes "Efforts to infuse thinking, as content is learned also
affords students the opportunity to practice thinking in ways that
are characteristically scientific or historical." (p. 4).

Robert Glaser (1984) in his article, "Education and Thinking:
The Role of Knowledge," reviews research which demonstrates the

more students know about a topic, the more sophisticated their thinking forms about those topics. Training in the strategies of thinking alone does not produce the same results.

Minsky and Papert (1974) in their book, Artificial Intelligence echo this same notion: "A very intelligent person might be that way because of specific local features of his knowledge-organizing knowledge rather than because of global qualities of his 'thinking'" (p. 59).

In conclusion, teacher FOR thinking is again best summarized by Glaser (1984): "Learning and reasoning skills develop not as abstract mechanisms of heuristic search and memory processing. Rather, they develop as the content and concepts of knowledge domain are attained in learning situations that constrain this knowledge to serve certain purposes and goals. Effective thinking is the result of 'conditionalized' knowledge that becomes associated with the conditions and constraints of its use" (p. 99).

TEACHING ABOUT THINKING. In these programs, students are encouraged to become more conscious of their own mental processes as they study or problem-solve. They are directed to analyze what they know and what they need to know, in effect, to monitor their own thinking. These self-regulatory skills are a small part of the thinking process, but significant for the transfer of learning. Students learn how to predict the outcome of their performance, to plan ahead, to efficiently apportion time and cognitive resources and monitor and edit their efforts to learn.

Costa (1984) calls this process, known as metacognition, an
inner dialogue individuals have inside their brain. This inner
dialogue helps us analyze where we are at the moment. In these
programs teachers begin their activities by pointing out helps
that the students can keep in mind while they are doing the task
at hand such as strategies to use to attack problems and to
monitor their progress. During the activity, teachers invite
students to share their progress, thought processes and
perceptions of their own behavior. After the activity, students
are encouraged to evaluate how well their strategies worked,
whether they used alternatives and how efficient they were.

So thinking is back in the classroom. Change is occurring.
But along with this change in whatever form are tensions.

Tensions:

Tensions abound with the emphasis on teaching thinking. They
arise from the microcosm of the classroom, the curriculum found
there, the students within and the teachers. Cuban (1984)
describes an even more pervasive influence. He writes:

How classrooms are organized staffed, and governed
within the institutional arrangements that stretch from
the school into the superintendent's office and beyond
to the state capital is an architecture that drives
most teachers, but by no means all, toward pedagogies
that prize content coverage, recall of information,
facile performance on multiple-choice test items, and

few student questions-approaches that seemingly run

counter to the development of reasoning (p. 663).

How do these factors affect thinking? Ideally, a well-
managed classroom should be a place where students can think,
where chaotic conditions are non-existent, where learning should
occur. Yet there is a real tension between the order in the
classroom and curriculum. Doyle (1985) found that curriculum
which involved higher level cognitive processes, comprehension,
inference and decision making often proves problematic for
students. It is often associated with delays in the time flow of
a lesson, low success and completion rates and even direct
negotiations by students to alter the demands of work. Teachers
met these demands by simplifying the task and often never assign
work that demands higher level thinking. His commentary is
prophetic "A well run lesson that teaches nothing is just as
useless as a chaotic lesson in which no academic work is possible"
(p. 35).

Let's examine these factors independently. How does the
curriculum heighten ten. n? uban (1984) remarks that curriculum
is often focused on "stuffing a whale of knowledge into a sardine
can of a student" (p. 655). In working with teachers over the
last few years in promoting thinking across the curriculum. I am
constantly confronted with "I can't allow that much time for
questions and discussion, I have the whole book to cover."
Pressures come from Directors of Instruction and Curriculum, and
other teachers, especially next year's teacher of the students we

have this year. In addition, the teachers themselves view
"covering material" as their first duty. It is the unusual
teacher, who commits to having his or her students "understand"
rather than "cover" the course material.

Tensions arise from the students. Many students have made a
career of passive learning. When met by instructional situations
which suggest they may have to use some mental energies, they
resist. They negotiate. What emerges is what Sizer (1984) calls
"conspiracy for the least," an agreement by the teacher and the
students to do just enough to get by.

Finally, tensions arise from the teachers. The basic
imperative to maintain order colors their choices and their
activities. Too many kids, too little time, too little support,
too much accountability, all prove adversarial to nurturing
thinking in the classroom. There are teachers who in spite of
these conditions do manage to create a classroom which prizes
thought. However, they are few.

RECOMMENDATIONS

Despite these prevailing tensions, some teachers have
remained undeterred in their efforts to promote thinking in the
classroom. They nurture thinking admirably. Others are looking
for ways to broaden their understandings about the thinking
process. How can we move from talking about thinking in the
classroom to systematically providing thinking opportunities in
the classroom? I would suggest we examine a program that has

influenced the writing movement across the curriculum, the National Writing Project. What has made the National Writing Project and a number of its regional splinter groups such a success?

What springs to mind immediately? It is a program which demands that teachers write. Through this writing, teachers experience the sheer terror of facing the blank page. They experience how the writing process moves along in spurts and slow downs. In the process, they realize the importance of the right pen, the right place, the right mood. While they are writing, they learn how to use other participants in the project as a support group. They may not see themselves as clones of John Updike when they are finished but they understand writing. They write. They often become published writers themselves. They become crusaders. You see them in the schools telling their friends. "I tried this and it's awesome.' They convince department chairs. They are invited to do in-service. Like Bob Tierney, a BAWP'ed (Bay Area Writing Program) science teacher, they serve as international consultants.

From this experience, these teachers design writing programs that emulate the process. In their classroom, students write. Daily journals, fast and free writings, reports, term papers, all have a place. Students are guided in the writing process. They share in the editing process. They develop peer support groups which provide feedback. Time and direction are provided so that the students can succeed. Often the curriculum is enriched by the

experience. Bob Tierney claims he never taught as efficiently. He takes the students' questions and their comments from their journals and uses these to design future lessons. Students willingly share their confusions, and their ideas on how to make the lesson clearer.

What are the ingredients that have made this program a fairly successful program? First of all, teachers are trained. Second, this training nurtures confidence. It is cooperative rather than competitive. Teachers work together to experience and learn the process. At the completion of the program teachers feel successful. It offers a process which can be replicated. Finally, it works when it is implemented in the classroom.

What isn't the National Writing Project? It's not a mandated program. Teachers are invited to participate. The writing process is not viewed as a set of disparate skills. Instead the process is viewed as a whole. The process is predicated on the content. What skills need to be employed to promote a clearer message? As these skills are targeted they are addressed. Need rather than a grand scheme dictates what skills the students work with.

Could we adapt some of these factors into a program on thinking? I would suggest we make the effort. Rather than impose skill competency accountability on teachers, teacher in-service could be offered which promotes establishing a classroom environment for thinking. Teachers would be invited to participate in an on-going program.

Rather than impose a scope and sequence of thinking skills to be mastered in the program, teachers will work with thinking skills that are integral to their own course content.

Principles from the research on effective instruction could guide the kind of thinking processes selected.

Principle 1 - Teach active learning. In this program teachers can design questions that encourage students to do mental gymnastics with the content they teach. Teachers can analyze their own questioning techniques for the incidence of high level questions through micro-teaching experiences. They can seek out peers to coach them in upgrading their skills. They can practice with the video camera running to record their questioning strengths and weaknesses. They can learn to direct students to raise questions. In addition, they can model how the students should examine their own questions. They can further analyze the classroom experience to diagnose how both they and the students work through ambiguities and explore ideas.

Principle 2 - Articulate Thinking. In this program, teachers should explore discussion techniques and instructional options which encourage students to talk and write about their experiences. Thought comes through verbalizing the student's experience. Study groups designed as Herber (1978) and Vacca (1986) suggest are effective ways to initiate the process. Teachers could explore the wealth of options available to guide discussion and writing. From those offered they could adapt those they find useful in their content areas.

Principle 3 - Structure thinking activities systematically.
Teachers need to use what they know about readiness, guidance and
synthesis when promoting thinking in their classrooms. In this
program, teachers might design units which involve all stages. If
they are teaching students how to problem solve, they need to
monitor if the students can articulate the problem clearly before
they can hope to solve it. How to guide students through the
solution stage needs to be defined. Again the teachers can
simulate the process themselves in the safety of the lab
experience before venturing forth in their own classrooms.

Principle 4 - Motivate learning. There is no motivation like
success. Once teachers have a repertoire of strategies, the
crossover to the classroom becomes easier. They've practiced,
evaluated and learned. They are confident of their own skills and
enthused about sharing them with their students. They are also
curious to see if in the real world of the classroom, their new
found skills will weather the tensions cited previously.

Principle 5 - Evaluate continuously. In this program teachers
should be taught ethnographic techniques to question what is
happening. "Teacher as researcher" is gaining increased
credibility in the educational profession. Initial questions
teachers can explore in their classrooms include analyzing how
they think themselves while teaching? Before they teach? How are
the students reacting to this approach? How are the students
making sense of it all? How do the students explain what is

occuring when they "think?" If negative reactions are setting in, what could be the problem? As Cuban (1984) says, such activity "captures the deep hunger teachers express for opportunities to learn and grow" (p. 676).

Finally, district-wide research could be designed to follow these teachers and other students. Comparative studies could be conducted with participants and non-participants. Longitudinal studies can document the effects of this program over time.

CONCLUSION

A group of students were challenged to invent a word which would serve as an antonym to the term, "catastrophe." They came up with "benestrophe," a word meaning "something incredibly fortunate." This is a time of benestrophe. The spotlight has returned to a movement which was professed by Plato. Since his time, cycles of reform in thinking have emerged and faded. Once again as educators we are asked to show our students "how to reason about the information given and how to express forcefully and logically the conclusions reached" (Progressive Education Association, 1924). Let us take this call to promote thinking seriously. Our kids are top-sacred.

BIBLIOGRAPHY

Beyer, B. R. (1985). Practical strategies for the direct teaching of thinking skills. In A. Costa (Ed.), Developing Minds: A Resource Book for Teaching Thinking (pp. 145-151). Alexander, VA: Association for Supervision and Curriculum Development.

Brandt, R. (1984). Teaching of thinking, for thinking, about thinking. Educational Leadership, 42, 3.

Costa, A. (1984). Mediating the metacognitive. Educational Leadership, 42, 52-62.

Costa, A. (Ed.). (1985). Developing minds: A resource book for teaching thinking. Alexander, VA: Association for Supervision and Curriculum Development.

Cuban, L. (1984). Policy and research dilemmas in the teaching of reasoning: Unplanned designs. Review of Educational Research, 54, 655-681.

deBono, E. (1983). The direct teaching of thinking as a skill. Phi-Delta Kappan, 64, 703-708.

Doyle, W. (1985). Recent research on classroom management: Implications for teacher preparation. Journal of Teacher Education, 36, 31-35.

Glaser, R. (1984). Education and thinking: The role of knowledge. American Psychologist, pp. 93-103.

Goodman, Y., & Burke, C. (1972). Reading miscue inventory manual: Procedures for diagnosis and evaluation. New York: Macmillan.

Greene, M. (1984). Philosophy, reason, and literacy. Review of Educational Research, 54, 547-559.

Herber, H. (1978). Teaching reading in content areas (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Levenson, S. (1966). Everything but money. New York: Simon & Schuster.

Maxwell, W. (Ed.). (in press). Preceedings of the second international interdisciplinary conference on thinking, Philadelphia: Franklin Institute Press.

Minsky, M., & Papert, S. (1974). Artificial intelligence.
   Eugene, OR: Oregon State System of Higher Education.

Nickerson, R. (1984). Kinds of thinking taught in current
   programs. Educational Leadership, 42, 26-36.

Sizer, T. (1984). Horace's compromise: The dilemma of the
   American high school. Boston: Houghton-Mifflin.

Vacca, R , & Vacca, J. (1986). Content Area Reading. Boston,
   MA: Little, Brown.

Walsh, D., Resnick, L., Cooper, E. et al. (1986). Issue: Is it
   advisable to teach generic thinking skills (such as
   comparing) apart from subject matter content (1986, March).
   ASCD Update, 28, 4.