

From Effective Teacher Training in Critical Thinking to Effective Classroom Teaching in Critical Thinking: END-LABELING AS GENERIC INSTRUCTION FOR STUDENTS 7-12

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Teacher training programs and staff development plans that address the instruction of teachers in critical thinking skills are now afloat in more than a few school systems, but to what degree these programs actually influence instruction in the classroom when training ends, that is an open question for current educators in the field. It is a question that returns us with a new twist to the issue of generic instruction.

Most approaches to staff development share what might be called a replication structure, that is, teachers are taught through a critical thinking instructional model which they are then asked to replicate with their students. This was the approach used in the recent Pace University Lakeland Central School District collaborative staff development grant funded by Goals 2000. Selected teachers in this collaborative university-school district training venture were introduced to a common set of critical thinking/writing skills through experiential strategies; taught to identify and label them; and offered generic instruction with subsequent opportunities to devise applications relative to their content material.

When these trained teachers were, however, asked to submit critical thinking skill lessons that they would want to use in their own content classrooms, the lessons they wrote showed striking omissions. The majority did not address the initial experiential identification, isolation, labeling, and generic instruction upon which they themselves had spent so much time and energy during training. Instead, they prepared generally strong lessons that applied or infused critical thinking skills directly into content areas. They could not or did not incorporate generic instruction. This common omission we think significant, not peculiar, to this project, and reflective of a need for educators to reconceptualize the dynamics of instruction in critical thinking for secondary school teachers.

At first glance we seem to have had in our project a disjunction between teacher training and student learning - and between teacher training and teacher doing. There was little chance that our teachers did not understand what was wanted; instructions were explicit and contained in a printed menu of lesson goals. An item asking how students would be taught to identify, label and understand skills generically was clearly included. Also, teacher comprehension of the skills was statistically validated (Doino-Ingersoll, 1996, 1997 (1)). Nevertheless, despite their own solid training and the instructions given, teachers chose to write lessons that either assumed that students did comprehend the skills generically, or ignored this component of critical thinking instruction altogether.

How do we explain this phenomenon? A key factor, we believe, is that our teachers are drawn from a 7-12 pool. They are secondary not elementary school teachers, and see themselves through the lens of their individual disciplines. They are by preference, training, and, in practice, "subject oriented," pressured for time in short periods and under the gun to produce students who can achieve in the next advanced class in the discipline, or pass the Regents (they are New York State teachers) or an A.P. exam. These teachers, appropriately enough for their situation, see everything they do in class in terms of their subject requirements and are loath to devote time to what they take to be non-essential to their subject.

Unlike elementary school teachers who teach students in longer time blocks, have flexibility in terms of subject area and are charged directly with the responsibility of teaching skills to their students, secondary school teachers perceive their responsibilities through "content areas." To formulate effective critical thinking skill staff development 7-12, this profile must be addressed. Why do we say this?

We believe that the teachers in our program who wrote infusion lessons were telling us something important about staff development. They were letting us know that a distinction must be made between the way a secondary school teacher is trained in critical thinking skills and the way that teacher is trained to present critical thinking to students in the classroom. These two processes are currently often identified as one. Yet they are distinct, with different goals and audiences and, therefore, they may require different methods and processes.

What exactly does this mean for staff development in critical thinking? Good teachers certainly need in-depth and broad-based training in thinking skills. They need the capacity to review the curriculum in their disciplines and find out where learning is best served through specific thinking skill patterns and where there are good opportunities to teach essential skills in terms of their content. Good teachers are quick on their “mental feet” during student to student, student to teacher dialogue, aware of the moment to apply, remind or reinforce appropriate thinking strategies. Their writing assignments - brief writing to learn, research projects, tests and classroom activities - all reveal their “reach” for higher level student thinking. In short, good secondary school teaching requires a teacher who has formulated for himself or herself a comprehensive orientation towards critical thinking upon which specific, often spontaneous, classroom strategies can be built.

On the other hand, students, we believe, unlike their teachers, do not have to start out with a comprehensive orientation, that is in fact where they are going and where we hope they end up. They need to develop, at first, non-identified thinking skill patterns as a result of spontaneously responding to teacher-formulated strategies. Then they need to identify and organize these patterns, both within a specific subject area and between specifically different subject areas. As the year progresses, they should, with some additional explanation, be able to formulate a general orientation towards critical thinking similar to that which the teacher initially developed. This orientation should promote students’ self-conscious awareness of their own critical thinking.

Is full generic instruction necessary for the desirable goal of student self-conscious awareness of thinking skills? The issue seems to us rather a question of what constitutes generic instruction and how students at the secondary school level can be exposed to situations sufficient to generate self-conscious awareness. How can we reach this admirable goal while respecting the natural boundaries of grades 7-12 single subject instruction? (If we do not respect this profile of secondary school teachers’ unique professionalism, we shall surely not achieve it at all.)

We believe from our experience with teachers and lessons in the Goals 2000 grant, that two factors, “end-labeling” and cumulative experience, are involved in the inculcation of thinking awareness into 7-12 students using teacher-infused critical thinking/content lessons without (initiating) generic instruction. The first involves what some of our teachers said (not included in their lessons) they intended to do after teaching the infused lessons which they handed in to us: that is “end-labeling.” In one way or another - a brief metacognitive written comment, or a brief discussion - many of our teachers indicated that they would “sum up” or “highlight” key content and thinking skill points that the class had covered after a specific lesson.

This summarizing is, of course, a traditional practice of good teachers. They habitually summarize key lesson content that has been covered and must be memorized or learned. The essential issue for our teachers, as many intuited for themselves, is to add a summary of significant thinking/language structures or underlying procedures associated with the day’s content to the end-lesson review. This is what we mean by “end-labeling.” Without training in critical thinking skills, teachers are unlikely to recognize, much less point out, significant thinking patterns beneath content lessons. Yet underscoring, verbalizing, referring back to or emphasizing thinking practice are the building blocks upon which the next or subsequent lessons in their disciplines (or life) will be built.

Consider what brief “end-labeling” of critical thinking practice after each subject class would mean for students. They would be exposed to a consideration of thinking skills four or five times a school day. This is the other essential factor in building self-conscious student thinking awareness. The cumulative experience from multiple exposures, ideally each day and throughout the year, costing a single teacher only a few minutes, would certainly build desirable awareness. Skill patterns would reappear in different guise from Spanish class to shop, for example, and would enable students to develop a comprehensive orientation.

The heart of generic instruction would thus be preserved in a way that makes sense to secondary school teachers. The same strategies would be seen at work in different situations. Such cumulative learning through infusion and “end-labeling” can function as introductory generic skill lessons with one caveat, of course. All the teachers in a school or school district must speak a commonly agreed upon critical thinking language. That vocabulary, the words to use for end-labeling, must be part of staff training.

To make clear just how much critical thinking can be taught in an infused lesson and to clarify the idea of end-labeling, let us look at a history lesson adapted from several textbooks and prepared after training by a good teacher who prior to our program had no formal exposure to instruction in critical thinking:

According to the teacher, (Mazzeo, 1996 (2)) the content goal for her 7th grade lesson from which we quote below is that students comprehend and absorb a “turning point” in the history of the United States. She plans to have them demonstrate that they have accomplished this goal by writing, for homework, their own accounts of the Boston Massacre based on primary documents. The background of her students’ study is given in the teacher’s own words:

“The students have been studying the aftermath of the French and Indian War and how it left Great Britain heavily in debt. They are aware of the British policies toward the American colonies, and how the taxation of the colonists, the quartering of British soldiers, the widespread use of writs of assistance, the dismissal of the Massachusetts assembly because of its demand that the Townshend Acts be repealed, and the arrival of two regiments of British soldiers to Boston to protect customs officers from the outraged citizens are met with anger and resistance by a great many colonists.”

Now her students will add the Boston Massacre to their store of information. This teacher has been trained to utilize content opportunities in order to teach thinking skills. For this lesson which she adapted from several history textbooks she will fuse discipline and thinking skills choosing to educate her students in “the process by which the information that they read in their texts and in other general [history] reference books gets there!” She says in her comments:

“It is critical that the students see that a primary source of information can be very slanted, and that the historian can be easily misled unless he examines other materials about the event or person he is studying.”

She is, of course, talking about a key critical thinking skill, fundamental to good thinking in general - often called awareness of abstracting or more loosely, awareness of perspective or point of view. “Awareness” is the key, being aware of or recognizing what may have been included and/or excluded in observations, reports, accounts or interpretations of events. This skill is fundamental to effective thinking.

Let us analyze just how she What is her procedure?

She says,

“First: I have the students study an engraving of the Boston Massacre made by Paul Revere. But they have no information about it other than that the event shown takes place in Boston in 1770. They must simply react to it and answer the following questions: (1) What do you see?”

A copy of the engraving is distributed to each student.

This seemingly simple first question for her class is actually not quite so simple. She presents a picture to be examined. Students are not presented with information; they are, instead, asked to discover it. The lesson begins with inquiry or active thinking. In order to say anything at all about the engraving, the student must actively observe it. Observation is not something students or adults practice naturally or inherently. The teacher is asking for focus and concentration on lines, shadow lights and shapes. She is saying when she says “What do you see,” tell me what relationships you are looking at and how the whole is organized.

Observing is a basic building block of critical thinking whether the object under observation is a collection of words of deliberate line lengths and rhythm called a poem or a pattern of cells seen under the microscope, or for that matter, an arrangement of numbers known as a quadratic equation. Knowledge begins with notice, focus, observation.

In sharing observations as students answer the teacher’s questions, they learn that everyone does not observe the same thing. People see differently; this is part of the knowledge needed for intelligent evaluation. This becomes clearer as the lesson proceeds. Her next question is (2) “How does what you see make you feel?”

Observation initiates interpretation of what is being observed. Student spectators observing the engraving closely will surely react in one way or another to the uniformed line of soldiers, their long guns pointed at the faces of the people on the street, falling ducks in front of hunters.

The teacher has thought through the activities using her own classroom-educated observation to predict student response:

“This activity will actively engage the student because it asks for an emotional response. Most will react to the armed soldiers attacking unarmed, helpless civilians, the looks of shock on the faces of the civilians, the contorted faces of the British soldiers, the raised arm of the British officer showing intent to attack, etc. The feelings students will likely express when asked how does it (the engraving) make you feel might include pity, anger, sorrow, fear, and disgust.”

Sharing responses, which could turn up some student replies different from teacher predictions above, is valuable both for widening an individual student’s range and for recognition of similarities and differences among individual interpreters. The dynamic of point of view, or perspective, (our versions of what is involved in how we are aware of what we are aware of), is being demonstrated step by step. The students in this class are involved in the action so to speak; they are being asked to experience the target historical event via the engraving. Aware of the importance of student “engagement” in learning, this teacher is using a student-centered activity to good effect, making of the students active doers instead of passive recipients.

At the very next step, however, she will move from personal response to causal thinking including prediction of consequences. Her new questions are:

- A. “What could have caused this confrontation?”
- B. “What do you think could happen next?”

These critical thinking skill questions are particularly important in the study of history. At this moment in the lesson, they serve several functions:

(1) Question A promotes recall of past information serving for review; unites the students’ prior knowledge of events to ideas gleaned from the engraving/discussion, thus helping them to integrate the new with the old. The teacher puts it this way:

“When asked to think about possible causes of this incident, the students would restate the events that have been going on in the colonies (and in Boston, in particular) at that time. This will place the event in its historical context. “

Predicting the consequences of the incident depicted in the engraving also has a place in this teacher’s coverage of content:

“When the students are asked what they think will happen next, responses will be centered on the idea of retaliation and fighting. This will set the stage for our study what is to come. “

It is at this point, when the students have been interpreting and predicting on the basis of their “reading” of the untitled, for them still anonymous, engraving that the teacher uses a “startle” effect. Having built an interpretation of events more or less based upon the engraving, she then introduces new information. She tells the class that the engraving was executed by Paul Revere a sympathizer and leader of the patriot cause. First, giving this identification time to sink in, she then leads them to explore its ramifications.

“I will ask them if any of their feelings have changed? Do they see anything differently? Can they guess what the building marked ‘Butcher’s Hall’ really is? Why would the British Customs House be called that?”

The engraving must now be re-examined in the light of new evidence. It is no longer a neutral artifact, but is as are all products of human intellect and imagination, to some extent a reflection of someone’s view point. The information it gives will have to be re-seen in this light, and re-evaluated with the awareness of the point of view of Paul Revere.

The teacher says:

“The students must be brought to the realization that the engraving served a purpose: printing many copies of it and distributing those copies throughout the colonies would stir anti-British feelings and help the efforts of those favoring revolution. “

In this lesson, specific application of the notion that the position and point-of-view of the observer, recorder, writer, or artist in producing any document must be acknowledged by the critical thinker is underscored. Paul Revere’s outlook, political activities and purpose provide a context through which the engraving is viewed. The critical thinker, as well as the historian, must take into consideration or acknowledge the influence of personal and social contexts. This lesson makes the point experientially. The success of student research efforts depends greatly upon their capacity to recognize various points of view, evaluate those view-points and present them. The scope of this critical thinking history lesson is thus much wider than one content area.

As is so often the case with critical thinking skills, the issue of observer bias leads the class directly into another thinking skill - definition, the meaning of words and concepts, a fundamental skill which should be part of every discipline’s responsibility. The teacher explains:

“I write the word ‘massacre’ on the board. I ask the students for their own definition of the word, adding the dictionary definition (if needed). I ask them to visualize a massacre and then to look at the engraving again. The next question they must consider asks why the patriots called this event a ‘massacre?’”

This key word opens and demands attention to vocabulary and the skill of definition, but the point to keep in mind is that this essential vocabulary belongs to the discipline of history.

The students’ own knowledge of the word “massacre” is tapped first. The boundaries of usage of that word, legitimate and informal, slang or cliché, are explored at this point. What about the familiar basketball game score - which we so often hear is a “massacre”. What about formal dictionary definitions of the word. Examining aspects of a dictionary meaning such as “the act of or an instance of killing a number of usually helpless or unresisting human beings under circumstances of atrocity or cruelty.” *Webster’s New Collegiate Dictionary* suggests some of the complexities involved in definition. There may not have been “a number” of people, the teacher points out, perhaps just several; but if they were “unresisting” and if they were merely exercising a right of gathering or protest they assumed was theirs to exercise can’t we (and Paul Revere) consider the killings to be an “atrocity,” a “cruelty”? But then what is cruelty? The nuances of meaning, the deliberate care with which words must be chosen and used, these general critical thinking truisms are clearly illustrated here in a content-specific issue. This vocabulary discussion teaches the concept of definition as it sheds light on the “turning point event” known as the Boston Massacre and builds ideas and understandings that make the historical facts meaningful. Such discussion and associations make it more likely, as well, that the historical facts at the lesson’s center will be remembered.

The lesson then moves from the visual stimulus of the engraving to the lines appended to the bottom of the engraving. This poem is now, for the first time in the lesson, presented to the students. The concept of acknowledging the observer, a part of the overall awareness of abstracting, will now be strengthened by example, the same approach as taken with the engraving, but using a different form of expression. The concept will be reinforced and then expanded. The teacher explains:

“There is a verse at the bottom of the engraving that will be revealed at this time, and I will read the poem aloud to the class. We will then read it together. I will ask the students to react to the poem, to describe the feelings that they get from it, and to decide whether it adds to the power of the engraving or detracts from it.”

The verse, beginning “Unhappy Boston,” foregrounds the “guiltless gore” and the “patriots” flowing tears.” The British are described as “savage bands [who] with murderous hatred stretch their bloody hands.” It clearly reinforces the point of view already offered by the engravings, and should enable all of the students to get the point that a poem, a picture, a document must be looked at with an awareness of the force of point of view. The lesson does not stop here, however. The teacher has identified an opportunity to move beyond the specific engraving and poem to a more encompassing category. If we decide that both the engraving and

the poem, whatever their artistic merits, are examples of (dictionary definition); (2) “the spreading of ideas, information or rumour for the purpose of helping or injuring an institution, a cause, or a person” (*Webster’s New Collegiate Dictionary*), then we are moving into the larger category - propaganda.

The teacher links the idea of propaganda to political cartoons:

“This will lead to a discussion about propaganda. We will talk about how a poem or work of art can move people to action. This will lead into a discussion of political cartoons and how they, too, are used as instruments to get a particular point of view across.”

Her students will be able to use this grounding to reinforce analytical skills for current event newspaper coverage as well as the study of historical evidence. At this point, however, she is ready to pull together a key discipline concept, the recognition of the author’s perspective in primary documents, toward which this entire critical thinking infused lesson has been building. That is, she is ready to ask her students what historical account might have been written if the only primary documents historians saw were Revere’s engraving and the poem. What view would they have? Would they know the whole story? What do historians looking at primary documents have to keep in mind?

This lesson ends with a writing exercise that asks students not only to review the content learned, but to read more material. These are accounts written from the British point of view. Students are then asked to choose a point of view from which to write their own accounts of the Boston Massacre. In other words, they must place themselves at the event, identify who they are and write, given their adopted perspectives, how they see the event happening around them. Scenario writing of this nature promotes awareness of point of view; forces review and close study of the events; and promotes fluidity in writing about history.

By end-labeling the class’ work in perspective, observation, causal thinking, prediction, examination/re-examination, and definition as she reviews her students’ writing and/or the events they have covered, the teacher prepares the ground for her students’ general awareness of their own perspectives and thinking processes in other subjects which, cumulatively, contributes to their self-conscious awareness of their own critical thinking.

CONCLUSION

What needs to be done to help more teachers in all secondary school subjects teach in-depth lessons that promote self-conscious critical thinking? How can practical and feasible staff development attuned to the parameters of secondary education be offered and organized to make a difference in the classroom?

The answer to these questions we believe from our experience lies in four steps that should be considered by any administrator who wants to promote effective teaching of critical thinking:

I. Arrange for school or district-wide comprehensive experiential secondary school teacher training in generic critical thinking skills: perspective (point of view), definition, logical reasoning/argumentation, classification, cause-effect, comparison-contrast, time and sequencing, and extremely important, metacognition. Such training ensures that teachers will speak a common critical thinking language and share a common vocabulary. One teacher’s efforts will reinforce another’s toward a similar goal.

II. Include in generic workshops outlined above, classroom applications - through training in “infusion” methods, including writing-to-learn strategies, critical reading, questioning, content-based critical thinking exercises, and end-labeling of content thinking strategies. These approaches are the means to effective teaching and student learning.

III. Organize on-site turn-key training by teachers to extend and reinforce instruction of critical thinking/classroom infusion trainers. Economically feasible, turn-key teachers teaching their colleagues promote communication, collegial trust, respect, and common goals within a school.

IV. Organize training and sharing in subject-specific critical thinking applications by departments. Each department meets to study and share critical thinking patterns specific to their subject from shop to chemistry. Ongoing departmental workshops in curriculum analysis for critical thinking patterns; strategies and methods for infusion; student feedback and reactions; sequencing of skills and testing that promotes and exhibits

critical thinking - are needed if teachers are to develop and strengthen the critical thinking in their specific content areas. Teachers need to draw out and draw on their intuitive knowledge of the ways of thinking in their disciplines. They need to make conscious what they know so that they can model their thinking for their students. Exchange with other teachers stimulates, informs and enriches teachers' critical thinking in content infusions. In turn-key fashion, teachers who have completed their generic training and are initiating and refining their infusion skills can train colleagues.

V. Train administrators, department chairs, assistant principals, principals, etc. to recognize and encourage good teaching of critical thinking as they observe and evaluate teachers.

The steps outlined above promote a comprehensive teacher orientation toward critical thinking across the curriculum, which makes teacher "end-labeling" of thinking skills possible.

Cumulative experience with end-labeled, infused lessons will, in turn, enable students with some additional explanation towards the end of a school year to attain a self-conscious awareness of their own critical thinking processes without the need for initial full generic instruction by justifiably resistant, content-focused teachers.

NOTES

1. For the first group of teachers trained in the Pace University (Lakeland School District, Mohegan Lake, New York) WorkNet 2000 venture "evaluation of the program revealed that participants were extremely satisfied with all 10 workshops. The large majority of respondents reported that they were glad they had attended the workshops and would recommend them to others. When asked to rate how much they had learned, 89% of the teachers responded a substantial or an enormous amount.

In addition to assessing participant satisfaction with each workshop, participants were pre- and post-tested on the five key areas of instructional strategy that formed the core of the staff development program. The evaluation results indicated that participants increased their understanding of these areas to a statistically significant and educationally meaningful degree. Another important finding was that the magnitude of their growth in understanding was greater for teachers who attended more workshops."

Doino-Ingersoll, J. (1996). *WorkNet 2000 News Bulletin L* Verona, New Jersey: *Strategic Research Findings* for the second group of teachers trained include the following:

"Frequency of implementation of instructional strategies in critical thinking skill areas during April and May was higher for WorkNet 2000 participants than for non-participants.

(a) Participants exhibited statistically significant increases in implementation frequency for three of six critical thinking skill areas: perspective/point of view, metacognition, and classification.

(b) While non-participants showed a significant increase in one skill area, their frequency of implementation declined in five skill areas."

Doino-Ingersoll, J. (1997). *WorkNet 2000 Comprehensive Program Evaluation*, Verona, New Jersey: *Strategic Research*.

2. Mazzeo, Shelly (1996). *WorkNet 2000 Lesson*. Copper Beech Middle School, Lakeland School District, Mohegan Lake, New York.

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