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SKILFUL THINKING IN THE CLASSROOM

Just as it is necessary to build a tall building on a solid foundation, it is necessary to build skilful thinking in the classroom on two preconditions: (1) the teacher's mastery of the content and (2) the teacher's effectiveness in creating and managing positive conditions for thinking. Without a teacher who has mastered the subject, be it social studies, language arts, maths or science, the students will lack a model who thinks about the content. Thinking skills are not content free.

The second important element is the teacher's skill as an effective classroom manager. S/he must be able to conduct a classroom in which students know and follow basic rules; where there is a strong, on-task atmosphere well grounded in respect and responsibility.

Given these preconditions, the soil is ready to plant the seed for critical and creative thinking. The thinking classroom is a classroom in which the teacher purposefully gives priority to teaching students multiple ways to think about what they are learning and how to transfer these skills into more difficult content. The emphasis shifts from a content/product orientation to a content/thinking process approach.

We live in a time of information overload. Faster than we can grasp the information that comes in each day, radical new discoveries are uprooting traditionally accepted theories. One university professor lamented to his students at the close of a medical course that 50% of the information he had given in the course would be obsolete before they received their degrees. He went on to add that his biggest dilemma was the fact that he couldn't tell them which half it would be!

We only need to look around us to see the professor's point being corroborated time and time again. In 25 years, the computer has shrunk in size from a two-storey building to a tiny microchip hidden in every car, thermostat and electrical appliance that is sold. Mass production jobs disappear from the employment pages and are replaced by ads for computer programmers, technicians and high-tech engineers.

To prepare our young people for the possibilities and probabilities of the future that few of us can imagine, the wisest course seems to be a curriculum that triggers their critical and creative thinking. By causing students to think, question, wonder, explore, analyze, debate, hypothesize,

create and use wisely the avalanche of information they will encounter every day, an in-depth curriculum that focuses on thinking skills will provide more fertile ground for their intellectual growth in a high-tech world. Given such a curriculum, every classroom teacher will have a major responsibility to promote every student's skills for thinking.

Anyone who has been in school must concede that as teachers, we possess an almost absolute power within the classroom. Bruce Joyce says that "teaching is the second most private behavior." According to Marilyn Ferguson in *Aquarian Conspiracy*,

"Even doctors, in their heyday as godlike paragons, have never wielded the authority of a single classroom teacher, who can purvey prizes, failure, love, humiliation and information to a great number of relatively powerless, vulnerable young people."

Based on this belief that the teacher is without exception the key figure in the classroom, let's consider some important implications: the impact of teacher expectations, the roles the teacher plays in a 'thinking classroom', cognitive research and the important methodology available for promoting skilful thinking.

1. **Expectations:** Research indicates that when teachers *expect* high quality learning, students sense these subtly disguised expectations and tend to live up to (or down to) them.

If and when teachers believe that all students *can* think...and all students *need* to think, that message *is* communicated to the students. Teachers who value thinking challenge all students to stretch. These teachers cause students to interpret, analyze, translate, hypothesize, predict, apply, synthesize and evaluate what they learn. They expect students to discuss, debate, answer higher level questions, prove, write, think aloud and critically and creatively assess the ideas shared by the teacher, the texts and peers.

The key to high expectations, however, is more than commanding students to "think harder" and "think harder again". The telltale sign of high expectations in a classroom is the teacher's behavior toward low performing students. These are the students generally

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perceived as not doing their work, hiding in the back of the classroom, clowning around or regularly off task for one reason or another.

Teacher perception of student behavior is a major shaper not only of overt misbehavior, but also of self-concepts, achievement motivation and levels of aspiration. Every classroom teacher has an expectation impact on students. Some students learn from repeated praise, attention and success that they are expected to do very well. They strive to live by that expectation. Others, year after year, get the signals that they are slow, awkward and poor workers. After a while they learn to act as they are expected.

Although it may seem that teachers who promote thinking by all students must do everything except divide the Red Sea, their challenge is considerably less. Starting with the belief that all children can learn to think more critically and creatively, the effective teacher need do little more than add to his/her repertoire of skills and methodologies that promote skilful thinking. For examination, these are divided into four categories: teaching FOR thinking, by setting the climate; teaching OF thinking, by presenting the explicit skill; teaching WITH thinking, by structuring the interaction; and teaching ABOUT thinking, by metacognitive processing. But first, let's look at another key factor in the thinking classroom.

2. **Teacher Roles:** What roles do teachers play that demonstrate the value they place on thinking? To promote genuine 'thinking' in the classroom, teachers take tremendous risks. As a high school physics teacher said: "In a thinking classroom, the sage must abdicate the stage." The teachers who foster thinking in the classroom make a conscious decision to give up their autonomy in that classroom. They relinquish 'centre stage' and instead assume several enabling roles.

Catalyst/Motivator: Motivation is ultimately intrinsic, but there are extrinsic strategies that set conditions to invite youngsters into the learning situation, that excite their curiosities and entice them to investigate further. As Dr. Madeline Hunter comments about motivation, "You can lead a horse to water, but you can't make him drink...yet you can add salt to his oats." The catalyst/motivator role presumes that "first you've gotta hook them".

For instance, at a recent mind-brain workshop, this is how the trainer captured the curiosity of the participants: by suggesting that following a demonstration on "eye movements" the attendants would be able to "tell if someone was lying", he "hooked" them into the learning situation about to take place – a discussion of neuro-linguistic programming.

Teacher/Educator: Instructional input, teaching methodology, development and implementation of lessons are the components of this role. The teacher demonstrates and models explicit skills as the instructional expert who presents content for student absorption. This role epitomizes the act of teaching as most of us conceive it.

For instance, teaching the skill of classification explicitly, the teacher defines the terms, states the objective, provides instructional input through lecture, media or discussion, structures interaction for students to practise the skills, monitors, reinforces and gives immediate specific feedback.

Facilitator/Coach: When facilitating thinking, the teacher is making it easier. S/he helps guide, gives specific direction and coaches with focused attention on particular skill needs. The leader in this role senses *when* and *when not* to intercede in the process; s/he's front and centre when needs arise, but assumes a low profile when the situation seems to be progressing well on its own.

Counsellor/Cheerleader: This role adheres to the "fluff them up" theory of positive reinforcement for developing student behaviors. It involves active listening, encouragement, 'cheering', support and meaningful feedback. The counsellor/cheerleader role is most often a one-to-one interaction, but there are instances in every classroom when group guidance, direction and support become necessary.

For instance, when a student shifts from an involved participant in discussions to a quiet, uninvolved bystander, the sensitive teacher notes the variance and finds a private time to talk with each student. Similarly, students successfully mastering long division are positively reinforced for their success.

Confronter/Disciplinarian: Although this is not a coveted role in the thinking classroom, it is, at times a necessary one. The effective

leader handles occasions that call for confrontation, routinely and skilfully as they arise. For instance, during a brainstorming session, one particular student consistently violates the DOVE Guidelines. The effective teacher notes this pattern of behavior and confronts the student appropriately.

Champion: Dr. Benjamin Bloom in *All Our Children Learning*, prods us to "Imagine a classroom learning session which is so powerful that many students have almost total memory of it twenty years later...peak learning experiences...reveal the conditions which are essential to creating them...a charismatic instructor does much to create an atmosphere for peak experiences...(if) the students regard the teacher as one who is communicating some fundamental truth or...some way of viewing phenomena which is both unique and of great moment."

Peters and Waterman advance a similar idea of the necessity of this key figure in *In Search of Excellence*. They note that *without* committed champions, a handful of dedicated people with "know-how", energy, daring and the staying power to implement an idea, the idea dies. Teachers who believe in a 'thinking classroom' display persistence and courage of heroic quality. They are zealous volunteers who present powerful role models to young people. These teachers are 'insanely' good at what they do and what they do is create classrooms that cause students to become intensely involved in their thinking. The role these teachers play is truly one of champion of cognition.

3. **Cognitive Research:** What is cognitive research? It is the study of those effective teaching strategies which help students process information so that they extract meaning from it. It includes what the teacher does to help students understand what they read or hear, solve word problems in maths, think critically and creatively in all contents, transfer knowledge and skill to new areas, and think about their thinking in purposeful ways.

Cognitive research has special meaning for the improvement of learning. Because the research has shown us that learning is an active process that contributes to both long-term and short-term memory, we can no longer argue that learning is the result of rote recall or the artificial linking of bits of information. Rather than place emphasis on

drill and practise, the teacher who operates from a cognitive perspective has the assurance that the time spent in processing information through wait-time (a moment of silence before a question is answered), higher order thinking discussions and co-operative groups is the more valuable instructional activity for all students. There is growing evidence that such processing time is a must for lower achievers.

In addition, teacher acceptance, a positive peer climate and co-operative groups work to increase student achievement. These methods work because they provide the structure, the time and the expectation for students to think about what they are learning, to make mental connections and to transfer new insights into new situations.

If we take full advantage of cognitive research, it is important that we consider the time trap. Cognitive processing, be it to facilitate concept development in the content or to improve metacognitive strategies for use with course content, takes time. It takes time to structure the strategies and it takes more time for the students to practise. Where do we get the time? There are several possibilities.

- a. Cut down on repetitive exercises. See short drill and practise only as a preparation for metacognitive discussion or as a check for individual progress after intense metacognitive work.
- b. Reduce textbook 'fill in the gap' exercises. If you check most of your workbooks, they are asking students to *recall* information at least 90% of the time. Instead, take more time to focus students on the key concept of a lesson, plan with them how they are going to apply information processing strategies and thinking skills, monitor their progress and evaluate how they thought through the task. Instead of covering the pages and answering the recall questions at the end of each chapter, ask higher order questions focused only on the critical concepts.
- c. Keep quiet. Before you begin intense work using effective teaching strategies, tape record several half hours of class time. Count the amount of time you use talking and the amount of talk time for students. The more you talk, the less time is available for students to process. If you are