Students in the twenty first century must be equipped with the skills that enable them to think for themselves, to be self-initiating, self-modifying and self-directing. They must acquire the capacity to learn and change consciously, continuously and quickly. They will require dispositions to take them far beyond the acquisition of content knowledge. Our society recognizes a growing need for informed, skilled and compassionate citizens who value truth, openness, creativity, interdependence, balance and love. This demands the school curricula must be open and flexible enough to accommodate these perspectives.

Five pervasive themes or patterns may be found in a thought-filled curriculum. They provide lenses through which the curriculum may be examined and organized. They may also constitute some 'unfinished tasks' providing an agenda for action in building a more thought-full curriculum for a more thought-filled world.

The thought-filled curriculum

Arthur Costa shares five thoughts about a thought-filled curriculum

Learning to think

Iron rusts from disuse; stagnant water loses its purity and in cold weather becomes frozen; even so does inaction sap the vigor of the mind. Leonardo da Vinci

All of us think. Indeed, we come to this earth with the capacity, ability and inclination to think. Nobody has to teach us how to think just like no one teaches us how to move or walk. We do it innately when we are ready. Thinking, therefore, may be taken for granted.

However, it takes much time and coaching for human movement to be performed with precision, style, and grace. It takes years of practice, concentration, reflection and coaching to become a superb ballerina, gymnast or ice skater. Improvement is demonstrated by the increasing mastery of complex and intricate maneuvers performed repeatedly on command with sustained and seemingly effortless agility. The distinction between awkwardness and grace is obvious even to the most undisciplined observer.

Skillful thinking also develops through coaching followed up by hard work. Human thought processes can become more broadly applied, more spontaneously generated, more precisely focused, more intricately complex, more metaphorically abstract, and more insightfully divergent. Such refinement requires practice, concentration and reflection. Unlike athletics, however, thinking is most often idiosyncratic and covert. Awkwardness and agility, therefore, are not as easily distinguished in thinking as they are in athletics. Definitions of thought processes, strategies for their development and assessment of the stamina required for their increased mastery are therefore illusive.

A thought-full curriculum serves to forge a common vision among all members of the educational community of the characteristics of 'critical thinkers', dispositions of intelligent human beings, qualities of thought-full learners, and performances of efficient, effective, creative and reasoning problem solvers.

Learning to think is enhanced when teachers make thinking skills explicit by labeling cognitive processes and habits of mind when they occur, employing thinking maps and diagrams, and modeling the steps of problem solving, decision making and investigating.

Thinking to learn

Learning is an engagement of the mind that changes the mind. Martin Heiddeger

Meaning-making is not a spectator sport. Knowledge is a constructive process rather than a finding. The brain's capacity and desire to make or elicit patterns of meaning is one of the keys of brain-based learning. We never really understand something until we can create a model or metaphor derived from our unique personal world. The reality we perceive, feel, see and hear is influenced by the constructive processes of the brain as well as by the cues that impinge upon it. It is not the content stored in memory but the activity of constructing it that gets stored. Humans don't *get* ideas; they *make* ideas.

The learning of content, therefore, should not be viewed as an end of instruction, but rather as a vehicle for activating and engaging the mind. Content is selected to serve as a vehicle for experiencing the joy ride of learning.

Furthermore, meaning making is not just an individual operation. The individual interacts with others to construct shared knowledge. Instructional strategies and techniques that encourage successful participation in group activities assist students in constructing individual and shared meanings. Teachers engage students' thinking by posing challenging

questions and relevant problems, inviting student assessment of their own learning, and maintaining a safe, non-judgmental classroom atmosphere.

Thinking together

Friendship is one mind in two bodies. Mencius

A great problem facing education is caused by the fragmentation of thinking and acting – a way of thinking that divides and fails to see the interconnections and coherence of divergent views. People become convinced that their own perspectives on a problem are essentially right and that others have it wrong. But thinking in this way prevents us from gaining a wider perspective – one that would enable all of us to determine what we are missing. Egocentric thinking hinders serious reflection and honest inquiry.

Therefore, another purpose of a thought-full curriculum is to stimulate dialogue as a means of building an 'ecology of thought' (Isaacs, 1999) – a living network of memory and awareness that becomes a complex web linking community members together. This is difficult as it means temporarily suspending what we individually think, relaxing our grip on our certainties and remaining open to new perspectives. We must learn to entertain the points of view of others and develop a talent for respectful listening and dialogue.

Humans, as social beings, mature intellectually in reciprocal relationships. Collaboratively, individuals are able to generate and discuss complex ideas. Together and privately, they express different perspectives, agree and disagree, point out and resolve discrepancies, and weigh alternatives. Because people grow their intellect through this process, collegial interaction is a crucial factor in the intellectual ecology of the school. People are more likely to engage and grow in higher-level, creative, and experimental thought when they are in a trusting, risk-taking, and cooperative climate. Risk-taking requires a non-judgmental atmosphere where information can be shared without fear that it will be used for evaluative purposes. (Bryk and Schneider, 2002)

Baker, Costa and Shalit (1997) identify eight norms that may serve as standards or ground rules for working together effectively. These norms become the glue that enables groups to engage in productive and satisfying discourse. Four of the norms are:

Pausing: Taking turns is the ultimate in impulse control (Kotulak, 1997). In a discourse, space is given for each person to talk. Time is allowed before responding to or asking a question. Such silent time allows for more complex thinking, enhances all forms of discourse and produces better decision making. Pausing is the tool that facilitative group members use to respectfully listen to each other.

Paraphrasing: Covey (1989) suggests we seek to understand before being understood. Paraphrasing lets others know that you are listening, that you understand or are trying to understand and that you care.

Probing and clarifying: is an effective inquiry skill to use when the speaker uses a vague concept or employs vocabulary that is not fully understood by the listener(s). The use of probing and clarifying is intended to help listeners better understand the speaker and to foster improved understanding within the group.

Paying attention to self and others: Meaningful dialogue is facilitated when each group member is conscious of the subtle cues inside themselves and within the group. Paying attention to personalities and beliefs enhances group members' understandings of each other as they converse, discuss, deliberate, dialogue, and make decisions.

Thinking together demands a shift away from the confines of our own traditional obsolescent thinking conception of *me* to a sense of *us*. People come to understand that, as we transcend the self and become part of the whole, we do not lose our individuality but rather our egocentricity. Achieving such an ecology of thought requires patience, stamina and courage. The benefits, however, are resplendent.

Thinking about our own thoughtfulness

I thank the Lord for the brain he put in my head. Occasionally, I love to just stand to one side and watch how it works. Richard Bolles

Human beings, to the best of our knowledge, are the only form of life with the capacity for metacognition – the ability to stand off and examine our own thoughts while we engage in them. However, not everyone seems to take advantage of this (Chiabetta, 1976), (Whimbey, 1980, (Csikszentmihalyi, 1993). Thus, a broader aim of a thought-full curriculum is to promote metacognition – consciousness of our own thinking.

Thinking involves the whole of us: our emotions, our ways of feeling in the body, our ideas, our beliefs and our qualities of character. Learning to think begins with recognizing how we are thinking now. Generally we are not all that conscious of how we are thinking. We can begin to think by listening first to ourselves and to our own reactions – learning to watch how our thoughts encapsulate us. Much of what we think happens simply by virtue of our agreement that it should, not because of our close examination of our bounded assumptions, limited history and existing mental models.

Descriptions of the characteristics of effective thinkers serve as mental disciplines not only for our students, but for each of us as well. When confronted with problematic situations we all must learn to habitually monitor our reactions by asking ourselves, 'What is the most *intelligent thing* I can do right now?'

- How can I learn from this? What are my resources? How can I draw on my past successes with problems like this? What do I already know about the problem? What resources do I have available or need to generate?
- How can I approach this problem flexibly? How might I look at the situation in another way? How can I look at this problem from a fresh perspective? Am I remaining open to new possibilities and learnings?
- How can I illuminate this problem to make it clearer and more precise? Do I need to check out my data sources? How might I break this problem down into its component parts and develop a strategy for understanding and accomplishing each step?
- What do I know or not know? What questions do I need to ask? What strategies are in my mind now? What am I aware of in terms of my own beliefs, values and goals with this problem? What feelings or emotions am I aware of that might be blocking or enhancing my progress?
- How is this problem affecting others? How can we solve it together and what can I learn from others that would help me become a better problem solver?

Teachers can cause students to reflect on their own thoughtfulness by posing challenging problems and then having students describe their plans and strategies for solving each problem, sharing their thinking as they are implementing their plan and then reflectively evaluating the effectiveness of the strategy that they employed.

Thinking big

I learned to make my mind large, as the universe is large, so that there is room for paradoxes. Maxine Hong Kingston

A thought-full curriculum serves a larger, more spiritual agenda. When the first astronauts went into space and looked back on earth, they realized that there were no lines on the planet. The scars of national boundaries were gone. Dividing lines disappear when you get enough perspective. And yet, divisions still exist among people, children, nations, institutions, religions and political ideologies.

A thought-full curriculum, therefore, builds a more thought-full world as an interdependent learning community, where all people are continually searching for ways to trust each other, to learn together, and to grow towards greater intelligence.

Teachers support students to 'think big' when they inquire into moral, ethical and spiritual questions concerned with what makes human beings human such as: What is beauty? What is good? and What is just? A thought-filled curriculum, therefore, supports a vision in which classrooms, schools and communities are more thoughtful places. We must learn to unite and not divide. As Alan Kay (1990) stated: 'The best way to predict the future is to invent it.'

If we want a future that is much more thoughtful, vastly more cooperative, greatly more compassionate and a lot more loving, then we have to invent it. The future is in our schools and classrooms today.

Destiny is not a matter of chance – it is a matter of choice. It is not a thing to be waited for – it is a thing to be achieved. William Jennings Bryan

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