The Gifted Mind: *Learning to Think*

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Each human brain engages, second by second, in cognitive processes to access, filter and interpret information. Research shows that the brain processes 400 billion bits of information *per second*. However, we are aware of only about 1% of those bits of information. Each bit of this torrent of information is processed and accessed using a unique series of cognitive events that are closely associated to each individual's personal experiences and strategies. According to Dr. Joseph Dispenza, "The infinite information that the brain is processing every single second tells us that there's more to the world than we're perceiving."

Growth Mindset

The ability to think and learn, or *intelligence*, originally was considered a *fixed* mindset from birth. Dr. Carol Dweck of Stanford University discovered that intelligence is *not* fixed but can *grow*. Her growth mindset findings revealed that individuals who *embrace challenge, appreciate criticism,* and *recognize that true learning requires tenacity and effort, even if the consequence is failure, tended to push themselves toward new levels of knowledge*. As a result, this newly acquired knowledge directly impacts the expansion or growth of their intelligence.

Integrating the concepts of growth mindset into the educational landscape is applicable to all learners, but imagine the implications for gifted learners if they discover how to stretch their own cognitive resources in this way. Expanding and strengthening an individual's unique series of cognitive events to access, filter, and interpret information has the potential to increase his/her cognitive "pipeline" of consciousness and awareness beyond the current 1%, enabling more effective concept formation and problem solving.

Cornerstone for Thinking and Learning

The ability to stay focused and successfully attend to a task is a major cornerstone of thinking and learning. *Focus* is essential to successfully attend to any situation. According to Dr. Mihaly Csikszentmaihalyi, author of Flow: The Psychology of Optimal Experiences, "…attention is like energy in that without it no work can be done... We create ourselves by how we invest this energy." Investing our energy into *learning to think* is not as simple as it sounds. Personal experiences or frames of reference are important for developing unique cognitive events, but not all learners have been exposed to the experiences necessary to optimize their mental attention nor do they have the skillsets required to stay intently focused.

The ability to consciously refocus is therefore essential to a productive thinking process. As learners process material, their brains map the information to established neural-anchors and/or create new mental patterns that anchor the information in the brain for future access. Each cognitive process, if completed successfully, connects our past and present experiences and thoughts to the universe in which we live, potentially resulting in the growth of intelligence. Wandering attention does not facilitate the efficient connection of prior knowledge to new information.

Intelligence, in and of itself, does not ensure that an individual can focus attention on a situation or problem. The joy of learning or engaging in an "optimal experience", which is based on the theory of "flow", is an ideal mind space for thinking and learning. Dr. Mihaly Csikszentmaihalyi explains his theory of "flow" as those best moments in life

(optimal experiences) that usually occur when our minds or bodies are stretched to their limits as we voluntarily attempt to solve problems that are difficult and worthwhile. This voluntary state of "flow" is a condition of total engagement that is an enjoyable experience where time seems to stand still.

Achieving an intellectual "optimal experience" requires intentional immersion into reflection about information and ideas, while at the same time controlling external and internal distractions. Establishing this type of learning environment sets the stage for focused higher order thinking, enriching the creation and synthesis of ideas.

Zone of Focused Engagement

"Gifted programs" have been frequently studied and reviewed and, more often than not, have received low evaluations. Among the reasons for this state of affairs are too few opportunities for students to study topics of personal interest, too much emphasis on facts rather than learning to use concepts and thinking skills in creative ways, a lack of teachers who are trained to teach gifted learners, and/or little support financially for gifted programs.

The good news is that modifying curricula to engage gifted learners to think at a higher level does not require massive changes in resources or in the educational system. Programs that promote higher order thinking integrate into instruction such functional approaches as those described in a construct called the *Zone of Focused Engagement.* The Zone of Focused Engagement consists of four elements: growth mindset, focused thought, flow theory, and recognition and control of learning distractions. Focused engagement elements are challenging by their very nature and require learners to use their full attention to engage deeper mental resources to solve issues. When individuals learn to reach beyond the obvious and mentally 'play' with problems, the way is opened for them to find innovative solutions rather than opting for easy answers. Even if problems go unsolved, learners are encouraged to identify what went wrong, which then begins a new journey into higher order thinking.

Empowering educators and their gifted learners with insights, abilities and standards to recognize when they are truly functioning in the Zone of Focused Engagement positions gifted programs to create learning environments that are both challenging and effective. Expanding students' abilities to *intentionally* think and learn based on a strong cognitive framework enables them to more effectively interpret new information, merge it with existing information, and develop new insights or creative approaches to problem solving. Achieving the sense of 'flow' (time standing still) while thinking and learning is a lofty goal, but a goal intended to better employ and develop the "gift" that these learners have been given.

Focused Engagement In Action

Planning and preparing the groundwork for students is an essential step when developing a lesson. "Reasons" that might cause this stage to be minimized or skipped are *time* or the (invalid) *assumption* that gifted students do not need an introduction or framework. Questions to ask when preparing a lesson that utilizes Focused Engagement are:

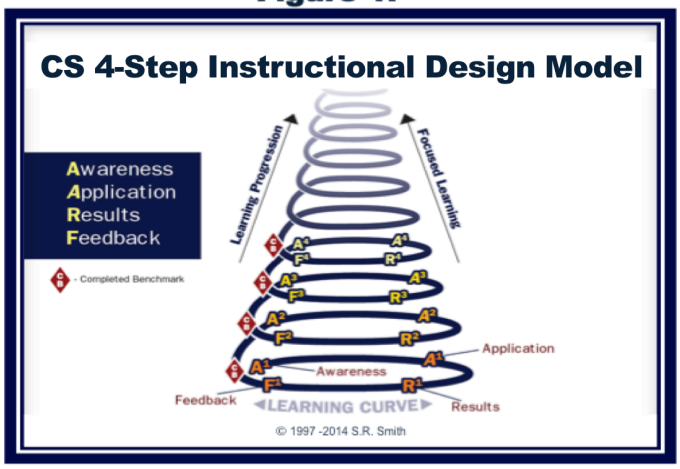
- Is the lesson challenging, but not impossible?
- Has the context and rationale for the lesson been clearly established?

- If new content is introduced, have students been prepared with material that helps them to establish a personal 'frame of reference'? If relevant, provide examples of relational inferences, encourage students to think from their personal points of view and to reflect on their progress as they move through the lesson. Are students provided with the resources needed, *etc.*?
- If the content is an expansion of prior knowledge, have the students' personal 'frames of reference' on the topic been refreshed, have examples of relational inferences been established, have students been encouraged to think from their personal points of view and to reflect on their progress as they move through the lesson, and are students provided with needed resources?

- Does the lesson provide for 'stretch' learning?
- Is the student encouraged to work at his/her own pace?
- Does the lesson set clear benchmarks for students to monitor their work progress? If they find that they are off the mark, is there a reflection process (essential to learning) to help students to accelerate or refocus?
- If failure is the outcome, can the students evaluate what went wrong?
- Does the lesson provide for a constructive reflection or feedback process regardless of the outcome?
- Does the lesson establish an engaging learning environment and minimize potential distractions?

The CS (CadenaSmith) Instructional Design Model (Figure 1) provides a four-step guide that educators can utilize to develop learning modules. The key elements in this model provide that, as students move through the learning cycle, they experience a full ***awareness*** of the topic, have the ability to freely explore and ***apply*** learning strategies to solve a problem, recognize the ***result*** (good or bad), and engage in a constructive ***feedback*** loop regarding the outcome of the lesson in order to change or modify as needed. If a lesson introduces a new topic, the learning cycle will initially be broad to establish a strong 'frame of reference' and content base. After a baseline is established (and tied to prior knowledge), the learning cycle becomes tighter and students enter the Zone of Focused Engagement in a more natural manner, thereby using the knowledge base as a foundation for new ways of considering the issue at hand. The goal of this design model is to enable students to achieve a state of 'flow' as they *learn to think,* thus maximizing the power of their brains through focused engagement.

Figure 1:



Summary

Every human processes immense amounts of data on an ongoing basis. Presumably, the 'gifted' mind is capable of processing and correlating more data than others, but even gifted minds need guidance and development of skills to optimize their thinking processes. The objective with gifted (and all) students is *not* mere memorization, but development of their intellects. As learners focus on challenging and interesting concepts and materials, their ability to build mental frameworks and thinking processes expands their capacity to synthesize information in innovative ways. Through these new and rigorous learning experiences they will increasingly achieve 'flow' and start to recognize the true joy of learning that will inspire them to grow their intellects throughout their lives.