A Teaching Model for Integrating Creativity into Content

Keep in mind that:

- Creative learning and teaching is best enhanced by non authoritarian methods and approaches
- Creativity can be deliberately taught and learned, not only as a stand alone topic, but also by integrating its skills into other content areas
- Incubation was a basic mechanism of creative thinking that can be deliberately facilitated by teachers or trainers in instructional situations

"It is generally accepted that you can teach for creativity. Teaching creativity as the content of learning starts with the identification of the specific dimensions of creativity for instruction. It may include, for example, creativity processes, dimensions of the creative personality, and affective and cognitive skills for creativity. Creativity may be the focus of a lesson and/or weaved into a lesson that focuses on another content area. Rather than assuming creativity is a natural part the learning process that will 'just happen,' teaching creativity allows for greater clarity around the essential concepts, the formulation of assessments to examine the degree to which the creativity goals and objectives are met and deliberate planning for the learner's creative growth. Deliberate approaches to teaching creativity vary and require a theoretical foundation and framework for creative learning to be more effective. Otherwise creative learning can be haphazard, focusing to broadly or narrowly over-emphasizing a particular skill or dimension. In order to deepen the learning regarding creativity methods and processes, connections need to be made to uses in varying contexts and areas of learning." (Keller-Mathers, 2009, p. 198-99)

Overview of the Torrance Incubation Model of Creative Teaching and Learning

The Torrance Incubation Model of Creative Teaching and Learning (TIM) is one of the few models in the domain of creativity whose major purpose is the design and delivery of creativity content. It was developed by E. Paul Torrance to provide a model for integrating creativity content into other disciplines or content areas. Effective use of the model presupposes a skill base of pertinent concepts that are basic and necessary to teach as creativity content. Thus, using the TIM requires a clear understanding of the distinctions between the creative process and the model itself and the creativity content it seeks to deliver. Since 1987, a deliberate initiative at the International Center for Studies in Creativity (ICSC) provided further development of the model, curricular applications, research and dissemination of TIM.
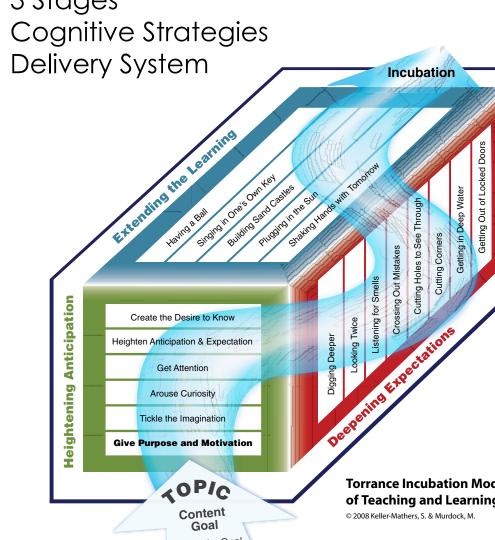
What is it? A model for creative teaching & learning

Original Purpose: Design and delivery of creativity content
Integration of creativity content into other domain areas

Multi Purpose Application
Can be used to deliver any content area!
Dynamics between content & process form the unique metacognitive framework that makes the model so effective in integrating creativity into other content areas

Includes…
3 Stages
Cognitive Strategies
Delivery System

Torrance Incubation Model of Teaching and Learning

Getting in Deep Water - searching for unanswered questions, confronting the unimaginable.
Getting Out of Locked Doors - solving the unsolvable, opening up new vistas, going beyond the same.
Combinations of any or all of these strategies result in behaviors and thinking that go beyond the basics and require higher level thinking and processing. Discovery & exploration are characteristics of the participatory nature of this stage. Tolerance for ambiguity is essential for the teacher and the learner. (Murdock, & Keller-Mathers, 2002)

Stage 1: Heightening Anticipation

Purpose: Motivate & engage learners in a creative way by setting up learning situation to connect deliberate psychological state of readiness to pertinent content
Strategies: Create the desire to know Heighten anticipation & expectation, Get attention, Arouse curiosity, tickle the imagination, and give purpose & motivation. This last strategy is designed "to prepare learners to make connections between what they are expected to learn and something meaningful in their lives" (Torrance & Safter, 1990, p.7)

Stage 2 : Deepening Expectations

Purpose: Sustain motivation created by strategies in Stage 1 and use that motivation to encourage deeper exploration of a topic.
This is accomplished by alternating between anticipatory and participatory strategies.
Strategies: Choices of 8 strategies represented as metaphors.
Digging Deeper - diagnosing difficulties, integrating information.
Looking Twice - keeping open, search for new information.
Listening to the Smells - making use of senses.
Crossing Out Mistakes - understanding your feelings in response to new information, modify & refine.
Cutting Corners - summarizing, focusing, discarding.

Stage 3 : Extending The Learning

Purpose: Continue participation alternating with anticipation. At this point the anticipation is related to connections and uses. Result of continued alternation is that the model cycles around toward warming up to the new things that will be connected with the warm up effect more intense. (Murdock, & Keller-Mathers, 2002)
Strategies: Five strategies represented as metaphors in this stage are powerful in their combination and describe an intense focus on activities that promote continued creative learning strongly enough to keep learners engaged and active long after the formal "lesson" is over.
Having a Ball – fun, humor, laughter
Singing in One's Own Key – personalize information
Building Sandcastles – imagine, fantasize, search for ideal
Plugging in the Sun – work hard, find & use resources
Shaking Hands with Tomorrow – relate to future vision, that which has not yet occurred. (Murdock, & Keller-Mathers, 2002)

Delivery:

Lesson design is simple & deliberate.
When used to integrate creativity into content use two sets of objectives.
Objective I Content Topic or skills
Objective II Creativity Skill to be taught
Using dual format design activities for Warming Up, Deepening Expectations, and Extending the Learning.
Design Activities that will work BOTH Content and Creativity skill at the same time.

Integrating Creativity into Content: What to Select?

There are productive frameworks that can be used to determine the creativity content you wish to integrate into another content area. It's important to clearly articulate and understand what aspect of creativity you are integrating. Three productive frameworks are articulated below. They include the classic "Creativity Skill Set" first identified by Torrance for use in the Incubation Model (Torrance, 1979), the classic "4P's" of creativity outlined by Rhodes (1961) and the current Thinking Skills in the Creative Problem Solving Thinking Skills Model (Puccio, Murdock & Mance, 2007).

Torrance's Creativity Skill Set

The Problem: recognition or awareness of a situation; definition of the problem and commitment to deal with it; recognizing the essence of the difficulty and identifying sub problems that are manageable or can be solved.
Produce and Consider Many Alternatives: fluency; amount; generating many and varied ideas.
Be Flexible: creating variety in content; producing different categories; changing one's mental set to do something differently; perceiving a problem from different perspectives.
Be Original: moving away from the obvious; breaking away from habit bound thinking; statistically infrequent responses; the ability to create novel, different or unusual perspectives.
Highlight the Essence: identifying what is most important and absolutely essential; discarding erroneous or relevant information; refining are dealers, abandoning unpromising information; allowing a single problem or idea to become dominant and synthesizing all of this at the same time.
Elaborate-But Not Excessively: adding details or ideas--developing them; filling in details for possible implementation.
Keep Open: resisting premature closure; resisting the tension to complete things in the easiest, quickest way.
Be Aware of Emotions: recognizing verbal and nonverbal cues; responding, trusting and using feelings to better understand people and situations.
Put Your Ideas in Context: putting parts of experience into a bigger framework; putting experiences together in a meaningful way; making connection between things; giving situations and ideas a history, and background, a story.
Combine and Synthesize: making new connections with the elements within our perceptual set; combining relatively unrelated elements; hitchhiking; making the familiar strange and the strange familiar.
Visualize It-Richly and Colorfully: creating vivid, exciting imagery; creating colorful and exciting images that appeal to all five senses.
Enjoy and Use Fantasy: imagine, play and consider things that are not concrete or do not yet exist.
Make It Swing! Make It Ring: using kinesthetic and auditory senses; responding to sound and movement.
Look at It Another Way: being able to see things from a different visual perspective; being able to see things from a different psychological perspective or mindset.
Visualize the Inside: paying attention to the internal dynamic workings of things; picturing or describing the inside of things.
Breakthrough-Expand the Boundaries: thinking outside prescribed requirements; changing the paradigm or system within which a problem resides.
Let Humor Flow and Use It: perceiving incongruity; responding to a surprise; recognizing and responding to perceptual and conceptual discrepancies.

Person — Characteristics Of People
Process — Operations They Perform
Product — Results and Outcomes
Press — Environment, Context, Climate, Culture, Press

Rhodes 4p's Framework: Person, Process, Product, Press

Get Glimpses of the Future: predict, imagine and explore things that do not yet exist; wonder and dream about possibilities; view events as open-ended.
Source: Torrance & Safter (1999)

Cognitive Thinking Skills Associated With CPS

Type of Thinking	Definition
Diagnostic	Making a careful examination of a situation, describing the nature of a problem, and making decisions about appropriate process steps to be taken
Visionary	Articulating a vivid image of what you desire to create
Strategic	Identifying the critical issues that must be addressed and pathways needed to move towards the desired future
Ideational	Producing original mental images and thoughts that respond to important challenges
Evaluative	Assessing the reasonableness and quality of ideas in order to develop workable solutions
Contextual	Understanding the interrelated conditions and circumstances that will support or hinder success
Tactical	Devising a plan that includes specific and measurable steps for attaining a desired end and methods for monitoring its effectiveness

Creative Leadership: Skills That Drive Change by Puccio, Murdock & Mance (2007)
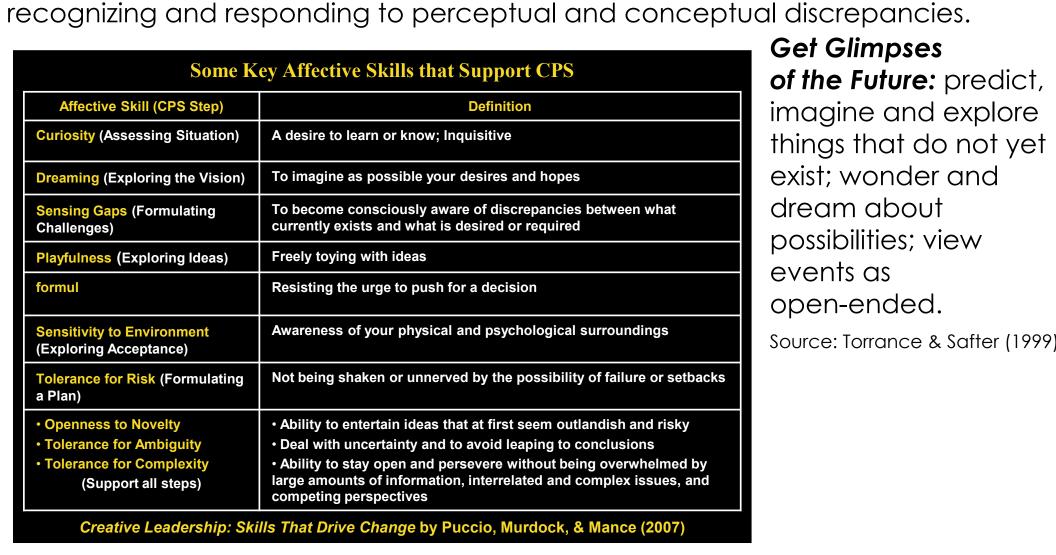
Puccio, Murdock & Mance Cognitive & Affective Thinking Skills in CPS:

Some Key Affective Skills that Support CPS

Affective Skill (CPS Step)	Definition
Curiosity (Assessing Situation)	A desire to learn or know; Inquisitive
Dreaming (Exploring the Vision)	To imagine as possible your desires and hopes
Sensing Gaps (Formulating Challenges)	To become consciously aware of discrepancies between what currently exists and what is desired or required
Playfulness (Exploring Ideas)	Freely toying with ideas
formal (Formulating…)	Resisting the urge to push for a decision
Sensitivity to Environment (Exploring Acceptance)	Awareness of your physical and psychological surroundings
Tolerance for Risk (Formulating a Plan)	Not being shaken or unnerved by the possibility of failure or setbacks
• Openness to Novelty • Tolerance for Ambiguity • Tolerance for Complexity (Support all steps)	• Ability to entertain ideas that at first seem outlandish and risky • Deal with uncertainty and to avoid leaping to conclusions • Ability to stay open and persevere without being overwhelmed by large amounts of information, interrelated and complex issues, and competing perspectives

Creative Leadership: Skills That Drive Change by Puccio, Murdock & Mance (2007)

Overview of the TIM Observational/Descriptive Studies

TIM is a deliberate framework to integrate creativity and promote incubation for deeper, richer creative learning. It can be utilized to plan and deliver discrete learning episodes such as a lesson and also for larger frameworks such as units, blocks of learning and long term courses and programs. It can also be used to meta-cognitively process learning experiences (what happened, why, where am I in the creative learning process?). Studies described include aspects of all of the functions of TIM.

GARAS (2002)
- Examined the use of TIM and the integration of humor and play into CPS training for human services employees.
- Conducted two-hour workshops with 10 employees.
- Administered Pre and post surveys examining thoughts about humor, creativity and problem solving.
- Participants reported an increased comfort level with humor, positive response to humor, and that it stimulated creativity and helped promote ideas.

Giordano (in progress)
- Designed and delivered college level freshman English lessons using the TIM and compared the interaction to non-TIM lessons.
- Developed TIM and non-TIM lessons integrating skills into the lessons.
- Deliberately chose literature students often consider "dry".
- Surveys completed showed TIM behaviors were present.
- Students were able to identify strategies in warming up activities, and reported being more engaged and involved in TIM lessons.
- Students rated their instructors higher when delivering lessons using TIM.

Michaels (2006)
- Examined corporate trainers' response to and use of TIM and training design methodology.
- Trained 17 customer service training professionals in the concepts and structures of TIM.
- Trainer designed and implemented training modules using TIM as a framework.
- Michaels designed a four-hour introductory TIM workshop, integrated with skills.
- Workshop participants indicated a tactic understanding, and current uses of TIM stages and strategies.
- Participants also indicated TIM would benefit their program design and facilitation of learners.

Nitkowski (2004)
- Observed and documented the use of TIM for creative learning and teaching, documented the teacher's experience with the model at elementary level.
- A five-week cross-curricular unit of study focused on science and social studies.
- Observations were documented by teachers as participants and observers and student feedback.
- Results indicated the presence of Torrance strategies and behaviors and as a whole there was engagement and motivation of the learners and the facilitator/teacher.

Olma (In progress)
- Examined the effect of TIM on adjunct college level faculty teaching pedagogy to enhance delivery of more engaged learning.
- Examined 17 faculty members through a 16 hour, two day Engaged Learning Project Pilot program teaching the context of higher education and instruction in the TIM.
- Debrief with participants, a session questionnaire, and participant reflections indicated TIM assisted with changes in classroom delivery of content from a lecture oriented design, to more engaged learning opportunities for students.
- Participants also indicated they were more mindful of their methodology and teaching delivery modes.

Standish-Wallace (2004)
- Integrated the TIM framework and skills into a mandated training for not-for-profit employees to strengthen learning of content and teach creativity concepts.
- Observed mandated training for 27 employees using the TIM and integrated two creativity skills.
- Participants also completed survey to evaluate teaching, retention, and use of the information three weeks after the training.
- Results indicated a positive response to the content and process of TIM.
- All but four of the 52 behaviors on the observational tool to heighten anticipation, deepen expectations, and extend the learning were observed.
- There were indications that content learning continued beyond classes at home, work, and decision making.

Variety of TIM Uses in ICSC Studies and Applications

Focus of TIM	Topic	Participants
Educational/Classroom	Social Studies, Art, Science, English and Cross-curricular	elementary through university students
Personal Growth, Creativity Skill Development	Constructing a fountain, 18 Beyonder skills videos	Self, Adults
Training and Development	Rights/Responsibilities, TIM, Creative Problem Solving	Corporate and not-for-profit employees
Performing Arts	Improv games/performance, children's literature/theater production	Adults, Teacher's of young Children

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Utilization of TIM Framework, Lesson Design and Creativity Skill Integration

Author	Audience	Overall Framework	Lessons/ Sessions	Integrated Skills
Accurso	7th Grade	Social Studies Constitution Unit	9	Look Another Way, Highlight Essence
Garas	Human Service Employees	Creative Problem Solving Workshop Series	3	Humor & Playfulness
Gilliano	Higher Education Students	English Classes 2 TIM lessons, 2 non-TIM	2	Look Another Way, Fantasy
Michaels	Corporate Trainers	TIM Workshop for Trainers	1	Look Another Way, Highlight Essence
Standish-Wallace	Health Care Employees	Rights Workshop Series	3	More than One Way, Put Ideas Context
Zubrzycki	Teachers	Series of lessons around a play	3	Visualize Inside, Fantasy, Humor

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Utilization of TIM as a Reflecting Process and Framework

Author	Audience	Overall Framework
Carr	Self/Adults	Building Fountain, "How To" Manual for others

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Utilization of TIM Framework and/or Lesson Design

Author	Audience	Overall Framework	Lessons/ Sessions
Nitkowski	3rd Grade Students, Teacher	Unit on Dessert Regions	13
Olma	Adjunct Higher Education Faculty	Engaged Learning, TIM	2

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Utilization of Creativity Skills as the Focus

Author	Creativity Skills Integrated
Man	Extend Boundary, Make it Swing Ring, Combine & Synthesize
Cillitioci	Visualize inside, keep open, combine & synthesize, Fantasy,
Dore	Inprov skits using most Beyonder skills and other creativity concepts
Sabo	Videos of 18 Beyonder skills

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Promoting Creative Teaching & Learning: The 2010 ICSC TIM Dissemination Initiative

E. Paul Torrance inspired decades of thought and action related to creativity, creative learning and the Incubation Model of Teaching. As his student, Mary Murdock spent 23 years at ICSC applying and further developing Torrance's classic model. She sparked the rise of an entire community of passionate TIM users whose thoughts and action related to creative learning and teaching is framed with this classic model.

The current initiative, lead by long time TIM collaborators and ICSC faculty Susan Keller-Mathers and Cyndi Burnett, articulates the next level of development. It was Dr. M's intent to inspire and grow colleagues and to that end, she was quite successful. Her words ring loud and clear to all of us "TIMers" who know that our fine work regarding creative teaching and learning, no matter how good it is, is underutilized if we won't "Get out there and make the world a better place." In the spirit of Dr. M's call to action, the initiative focusing on taking the ICSC work to the next level of dissemination of best practices.

The current initiatives builds from the foundational work of Dr. E. Paul Torrance and his colleagues at the University of Georgia, the influential work of Dr. Mary Murdock in utilizing and further developing Dr. T's original model and the current thinking of Dr. M, her long time collaborators Dr. Keller-Mathers and Cyndi Burnett and all the "TIMers". The dissemination initiative grew out of three needs:

1) develop a more deliberate collaborative environment, including strengthening the current informal network for sharing current thinking and initiatives related to creative learning and teaching in general and TIM specifically;
2) disseminate to the larger creativity community best practices from ICSC scholar/practitioners throughout the world who are using TIM;
3) provide support for the future development and dissemination of the ICSC's communities work related to creative learning and teaching in general and TIM specifically.

The initiative focuses on five main areas including: writing, research, practices, products and network. Many of the activities described are being developed in one or more areas currently. Current work includes an updated book on TIM (Keller-Mathers) and an edited collection of TIM practitioner's experiences (Keller-Mathers & Burnett).

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