

The Seven Circles of Learning

From Oral Tradition to the CD-ROM

Dr. David Thornburg
Thornburg Center for Professional Development
PO Box 7168
San Carlos, CA 94070
United States of America

(415) 508-0314 (Voice)
(415) 508-0315 (Fax)
DThornburg@aol.com

Course Objectives:

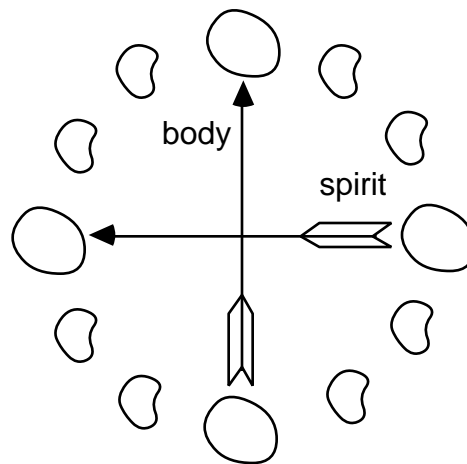
This workshop explores pedagogical and technological ideas that help students learn more effectively while developing and maintaining their engagement with education throughout their lives. From ancient teaching stories told around the campfire to demonstrations and exploration of the latest interactive multimedia tools, this workshop provides participants with concrete strategies for improved learning in students of all ages and cultures. On completion of this course, participants will be able to incorporate many of these ideas into their teaching immediately, and will have an information base from which to plan intelligently for the future.

Subjects explored include:

- Teaching as storytelling – the role of stories (and the affective domain) in education.
- The four stages of knowledge – learning as the perception of newness.
- The triune brain – avoiding anxiety for increased learning.
- The 4-MAT process – the importance of honoring learning styles.
- The theory of multiple intelligences – reaching the worksheet disabled learner.
- Laser videodiscs – the power of interactive video.
- CD-ROM's – traveling through conceptual space at the speed of thought.

- Selection and design of educational software that works – content is not enough.

Teaching as Storytelling



Teaching as Storytelling

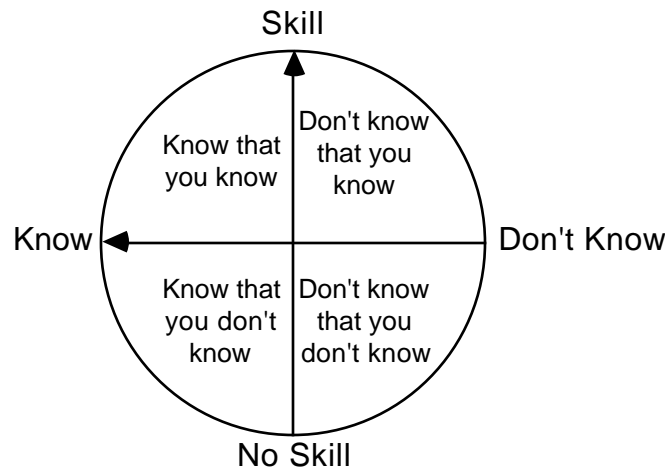
The Story Form Model:

(After Kieran Egan)

- Identify Importance in Topic
- Find Binary Opposites
- Organize Content into Story Form
- Conclusion
- Evaluation

Using this model, work with a partner to create a story that the two of you will tell.

Consciousness/Competence Model



Learning as the Perception of Newness

Natural Memory vs. Memorization

Taxon Memory:

- Information stored through practice
- Learning extrinsically motivated
- Memory resistant to change
- Items are isolated from each other
- Much of what is stored is not of immediate utility

Locale Memory:

- Spatial memory – huge capacity
- Contextual, interrelated memory
- Initial maps are formed quickly
- Maps are updated continuously
- Maps are motivated by novelty, curiosity and expectation
- Enhanced by smell, taste, touch, sound, etc.

Primary Emphasis:

Taxon Memory

- Prespecified “Correct” Outcomes
Q: What do I have to do?
- Rewards
Q: What do I get?
- External Motivation
Q: Do I have to take this class?

Taxon memory is primarily useful for memorizing information.

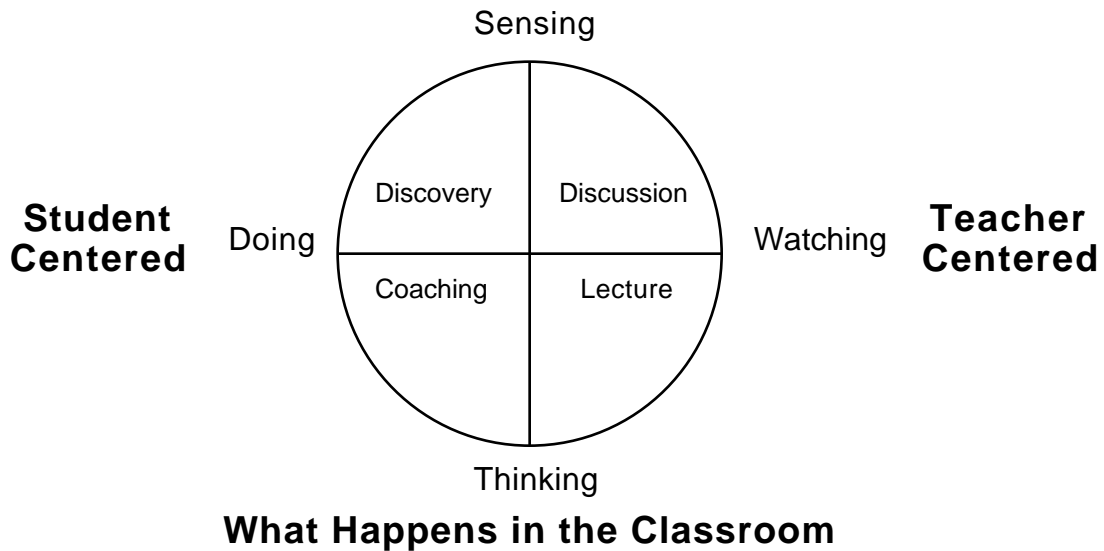
Locale Memory

- Open-Ended Outcomes
Q: What can I learn here?
- Intrinsic Motivation
Q: How do I find out?
- Sense of Purpose/Meaning
Q: Does this make sense?

Locale memory is primarily useful for creative projects and higher-order thinking skills.

4-MAT Model

What Happens in the Street



Teaching Around the Circle:

(After Bernice McCarthy)

TYPE I LEARNER

- Imaginative Learner
- Prefers to learn through sensing/watching
- Favorite Question: “Why?”
- Teacher needs to create a reason
- Teacher is motivator

TYPE II LEARNER

- Analytical Learner
- Prefers to learn through watching/thinking
- Favorite Question: “What?”
- Teacher needs to give facts
- Teacher is information provider

TYPE III LEARNER

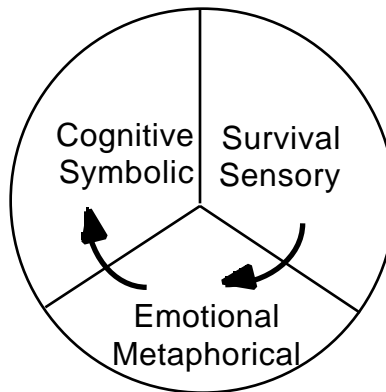
- Common Sense Learner
- Prefers to learn through thinking/trying out
- Favorite Question: “How does this work?”
- Teacher needs to encourage experimentation
- Teacher is facilitator/coach

TYPE IV LEARNER

- Dynamic Learner
- Prefers to learn through trying out/sensing
- Favorite Question: “What can this become?”
- Teacher needs to let them teach themselves and others
- Teacher is resource/evaluator

With a partner, discuss your personal learning styles and explore ways that you move through the quadrants when learning. Do you stay in one quadrant? Do you use all four? Discuss with the entire group when done.

Triune Brain/Flow Model



Triune Brain

Ancestral Brain:

The Reptilian Cortex

- Sensormotor
- Territorial
- Ritualistic
- Flocking Behavior

Guardian at the Gate:

The Limbic System

- Metaphoric
- Emotional
- Contextual
- Feelings

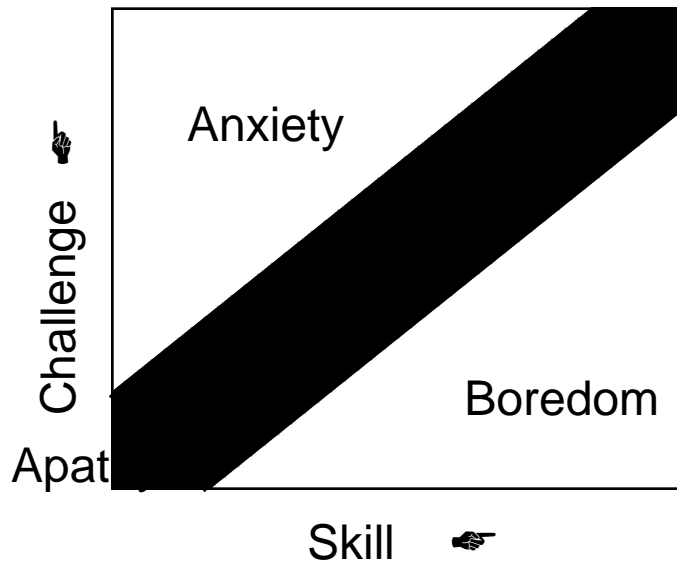
“Thinking” Brain:

The Neocortex

- Symbolic
- Rational
- Language
- 5/6ths of Our Brain

All three brains work together unless we experience distress and “downshift”

Make a list of any recent experiences you've had that fit this picture.



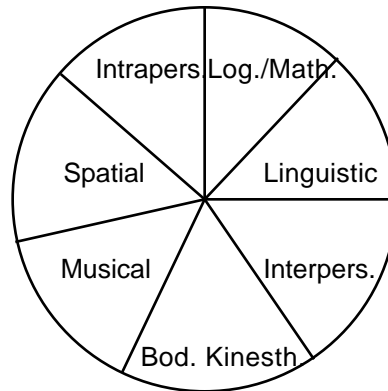
1. _____
2. _____
3. _____
4. _____

Attributes of Flow:

(After M. Csikszentmihalyi)

- Challenge and skill are matched
- Feedback is clear
- Action quickly follows inspiration
- Easy to focus on relevant stimuli
- Sense of control
- Unselfconsciousness
- Unaware of the passage of time
- Intrinsic motivation

Multiple Intelligences Model



Multiple Intelligences

Multiple Intelligence Inventory

Linguistic Intelligence

- Like to write, read and listen
- Spin tall tales or tell jokes and stories
- Have a good memory for names, places, dates, or trivia
- Enjoy reading books and writing stories
- Spell words accurately and easily
- Have well developed vocabulary and use language fluently
- Like doing crossword puzzles or playing word games

Logical-Mathematical Intelligence

- Explore patterns, categories and relationships
- Compute arithmetic problems quickly
- Enjoy mathematics and using computers
- Able to group and order data and then analyze, interpret and make predictions
- Reason things out logically to solve problems
- Play chess, checkers, or strategy games and win
- Devise experiments to test out things not easily understood
- Enjoy logic puzzles

Intrapersonal Intelligence

- Have a deep awareness of inner feelings, strengths and weaknesses
- Display a sense of independence or strong self-will and is self-directed
- React with strong opinions when controversial topics are being discussed
- Prefer own private inner world
- Like to be alone to pursue some personal interest, hobby, or project
- Have a deep sense of self-confidence
- March to the beat of a different drummer in style of dress, behavior, or general attitude
- Self-motivated to do well on independent study projects
- Intuitive ability

Spatial Intelligence

- Think in images and pictures
- Like to draw, paint, sculpt and participate in art activities
- Report clear visual images when thinking about something
- Easily read maps, charts, and diagrams
- Draw accurate representations of people or things
- Like to see movies, slides, or photographs
- Enjoy doing jigsaw puzzles or mazes

Musical Intelligence

- Sensitive to a variety of sounds in the environment
- Play a musical instrument or enjoy music
- Remember melodies of songs
- Tell when a musical note is off-key
- Prefer to have music on when studying or working
- Collect recordings
- Enjoy singing
- Keep time to music

Bodily-Kinesthetic Intelligence

- Learns best by moving around, touching, or acting things out
- Process knowledge through bodily sensations
- Move, twitch, tap, or fidget while sitting
- Engage in physical activities or sports
- Perform fine and gross motor skills effectively
- Like to touch or be touched when talking with people
- Skilled at handicrafts – woodworking, sewing, sculpting, etc.
- Enjoy using manipulatives and other hands-on learning

Interpersonal Intelligence

- Enjoy being around people
- Have many friends
- Socialize a lot at school, work, or home
- Organize, communicate and sometimes manipulate
- Learn best by relating and cooperating
- Enjoy group activities
- Serve as “mediator” when disputes arise
- Have empathy for the feelings of others
- Can “read” social situations accurately

Multiple Intelligence Inventory

	least like me	most like me
Linguistic		
Logical-Mathematical		
Intrapersonal (self)		
Spatial		
Musical		
Bodily-Kinesthetic		
Interpersonal (others)		

Multiple Intelligences Field Trip

Materials (optional):

Notebook, sketchpad, camera, tape recorder, video camera, etc.

Instructions:

Go for a hike on a trail through the woods, or along the coast of a river, lake or ocean – any place of great natural beauty. As you walk, be aware of any opportunities to make observations using the seven multiple intelligences (linguistic, logical-mathematical, intrapersonal, spatial, musical, bodily-kinesthetic, interpersonal).

For example –

1 Stop and listen to the wind blowing through the trees, or hear the sound of a babbling brook. Pause, reflect, and write a poem about these sounds. (musical, intrapersonal, linguistic)

2 Explore the two opposite spirals seen in the scales of pine cones or sunflower seed clusters. Count the number of spirals in each direction and relate them to the Fibonacci series. (logical-mathematical, spatial)

3 At a clearing or other beautiful place, stop, reflect, and take a deep cleansing breath. Feel the peace and beauty of the setting encompassing your entire body. (intrapersonal, bodily-kinesthetic)

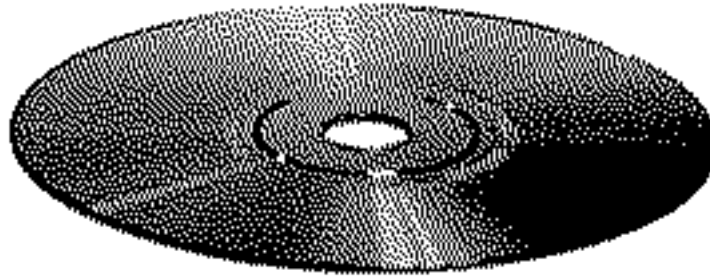
4 Sketch or photograph wildflowers and see how many of the plants you see have five petals. (spatial, logical-mathematical)

5 As you walk with a partner, discuss the scene before you as if you were one of the trees or rocks and had been at this spot for hundreds of years. (intrapersonal, interpersonal, spatial)

6 Listen for bird sounds or other natural sounds. Record these sounds if possible. (Hint: Tie your tape recorder to a tree in a remote area and come back for it when the tape has finished recording (30–45 minutes). This eliminates human sounds for all but the first and last parts of the tape.) If you wish, create music of your own that can be played with the sounds of nature as a background. (musical)

Using these examples as guides, create more activities on your own that use multiple intelligences. Explore how these ideas can be implemented in your school.

Laser Videodiscs



Laser Videodisc Capabilities:

- High quality video and audio
- Random Access
- Large still-frame capacity (54,000 per side)

Levels of use:

- Level 1: Playback with handheld control over still frames, etc.
Level 2: Programmed playback using on-board programmable memory
Level 3: Use of external computer to control playback

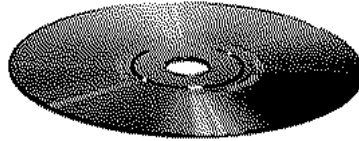
Features:

- Low cost
- High quality
- Virtually indestructible
- Large number of titles

Limitations:

- Analog format not compatible with computers
- Text and programs not supported easily

CD-ROM's



CD-ROM Capabilities:

- Audio
- Pictures
- Text
- Programs
- Over 600 megabytes of information

Formats:

- CD-DA
- CD-ROM
- CD+G
- CD-I
- DVI
- CD-ROM XA

Features:

- Low cost
- High quality sound and images
- Virtually indestructible
- Large number of titles

Limitations:

- Full-motion video doesn't work well (yet)

Multimedia Selection/Design Criteria (Integration of videodiscs and CD-ROM's into education)

Effectiveness (30 studies from 1980 to 1987):

- Improved performance over lectures (by as much as 50%)
- Significantly faster learning (by as much as 50%)
- Student attitude toward content is improved

Underlying Assumptions (Conventional vs. Interactive Teaching):

- | Conventional | Interactive |
|-------------------------------------|---|
| • Learners are all alike | • Learners are different |
| • Learning is linear | • Learning is non-linear |
| • Validation happens once | • Validation is ongoing |
| • Print-based materials | • Multiple media |
| • Simulation of real events is hard | • Simulation of real events is possible |

Criteria for selection/design – Excellent content is not enough:

- Does it tell a story?
- Does it support increasing awareness and skill?
- Does it balance watching with doing?
- Does it balance sensing with thinking?
- Does it keep challenge just ahead of skill?
- Does it support multiple intelligences?

Celebration of Knowledge

This form was designed in part by Andy LePage, 8001 N 13 St., Tampa, FL 33604

Self-Grading Using the Celebration of Knowledge (Adapt to your own content)

Use a grading scale of "A", "B", "C", (or another one if you prefer) in answering the following questions:

- _____ 1. My understanding of the ideas presented.
- _____ 2. My willingness to reframe or change my teaching to reflect this philosophy.
- _____ 3. My understanding of the content presented.
- _____ 4. My participation in this class or workshop.
- _____ 5. My overall grade for the workshop.

Please write a paragraph on how you arrived at this grade.

Finish any sentence you want to. In this class...

I learned
I relearned
I experienced
I wish
I applaud myself for
I find I need more
I'm excited about

A highly incomplete list of references

General:

- William Glasser, *The Quality School: Managing Students Without Coercion*, Harper and Row, 1990.
- Andy LePage, *Transforming Education*, Oakmore House, 1987.
- Neil Postman, *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*, Penguin Books, 1985.

Teaching as Storytelling:

- Michael Caduto and Joseph Bruchac, *Keepers of the Earth*, Fulcrum Press, 1988.
- Kieran Egan, *Teaching as Storytelling – An Alternative Approach to Teaching and Curriculum in the Elementary School*, University of Chicago Press, 1986.

Learning Styles:

- Bernice McCarthy, *The 4MAT System: Teaching to Learning Styles with Left/Right Mode Techniques*, Excel, 1987.
- Bob Samples, *The Metaphoric Mind*, Addison-Wesley, 1976.
- Bob Samples, *Open Mind/Whole Mind*, Jalmar Press, 1987.

Triune Brain, Flow:

- Renate and Geoffrey Caine, *Making Connections: Teaching and the Human Brain*, ASCD, 1991.
- Mihaly and Isabella Csikszentmihalyi, *Optimal Experience – Psychological Studies of Flow in Consciousness*, Cambridge, 1988.
- Mihaly and Isabella Csikszentmihalyi, *Flow: The Psychology of Optimal Experience*, Harper and Row, 1990.
- Leslie Hart, *Human Brain and Human Learning*, Brain Age Publishers, 1983.

Multiple Intelligences:

- Thomas Armstrong, *In Their Own Way*, J. P. Tarcher, 1987.
- Howard Gardner, *Frames of Mind*, Basic Books, 1983.
- David Lazear, *Seven Ways of Knowing*, Skylight, 1991.
- David Lazear, *Seven Ways of Teaching*, Skylight, 1991.

Technology:

- Michael L. DeBloois, *Use and Effectiveness of Videodisc Training*, Monitor Info. Svcs., 1988.
- George Haynes, *Opening Minds: The Evolution of Videodiscs and Interactive Learning*, Kendall/Hunt, 1989.
- Steve Lambert, et al., eds., *CD-ROM: The New Papyrus*, Microsoft Press, 1986.
- David Thornburg, *Education, Technology, and Paradigms of Change for the 21st Century*, Starsong Publications, 1991.

