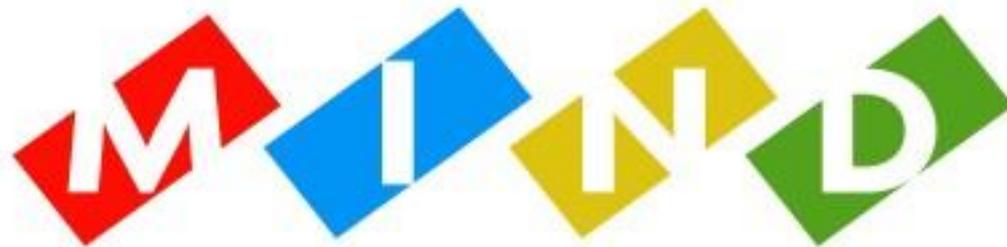


OPERACY: Teaching your child how to THINK

PRESENTED BY DR. MATTHEW E. WORTH

OPERACY: Teaching your child how to THINK



MIDWEST INSTITUTE FOR

**NEUROLOGICAL
DEVELOPMENT**

Dr. Worth may be contacted at:

neurodocworth@gmail.com or 636.537.9800

Dr. Edward de Bono

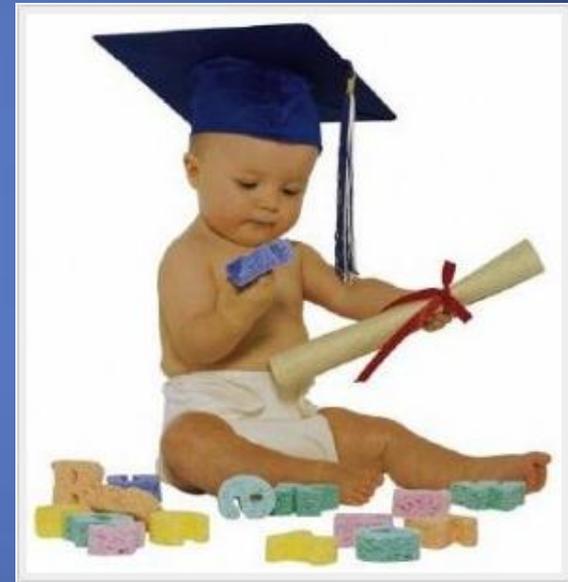
- Dr. Edward de Bono, is regarded by many as the leading authority in the field of creative thinking, innovation and the direct teaching of thinking as a skill.
- Development of the 6 Thinking Hats method and the Direct Attention Thinking Tools.
- Originator of the concept of Lateral Thinking, which is now part of language and is listed in the Oxford English Dictionary. Nominated for the Nobel Prize for Economics in 2005.
- Rhodes Scholar at Oxford, holds an MA in psychology and physiology from Oxford, a D. Phil. in Medicine and also a Ph.D. from Cambridge. He has held faculty appointments at the universities of Oxford, Cambridge, London and Harvard.
- Dr. de Bono's background in self-organizing systems led him to derive an understanding which he then applied to the neural networks of the brain.

OPERACY

THE TERM OPERACY IS DEFINED AS "THE SKILL OF DOING".

OPERACY INVOLVES ALL SUCH ASPECTS OF THINKING AS:

- OTHER PEOPLE'S VIEWS
- PRIORITIES
- OBJECTIVE
- ALTERNATIVES & CONSEQUENCES
- GUESSING & CREATIVITY
- DECISIONS
- CONFLICT-RESOLUTION



...AND MANY OTHER ASPECTS NOT NORMALLY COVERED IN THE TYPE OF THINKING USED FOR INFORMATION ANALYSIS. THESE THINGS ARE PART OF "PRO-ACTIVE" THINKING, NOT THE USUAL REACTIVE THINKING.

THERE IS A MYTH IN EDUCATION THAT “KNOWING” IS ENOUGH. IF YOU HAVE SUFFICIENT KNOWLEDGE, ACTION IS OBVIOUS AND EASY.

- **THE REAL-WORLD IS DIFFERENT. THERE ARE:**
 - **People to be dealt with**
 - **Decisions to be made**
 - **Strategies to be designed and monitored**
 - **Plans to be made and implemented**
 - **There is conflict, bargaining, negotiating in deal making**

CHILDREN AND ADULTS WHO DO NOT ACQUIRED SKILLS OF OPERACY WILL NEED TO REMAIN IN AN ACADEMIC SETTING.

Bloom's Taxonomy

Higher Order Thinking Skills

Evaluation

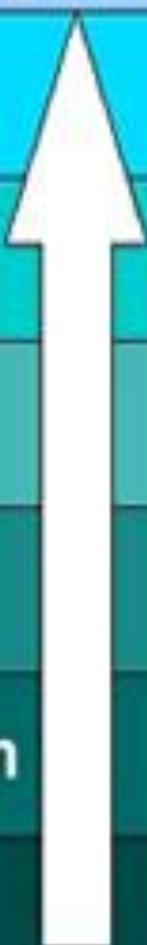
Synthesis

Analysis

Application

Comprehension

Knowledge



Lower Order Thinking Skills

Bloom's Revised Taxonomy

Higher Order Thinking Skills

Creating

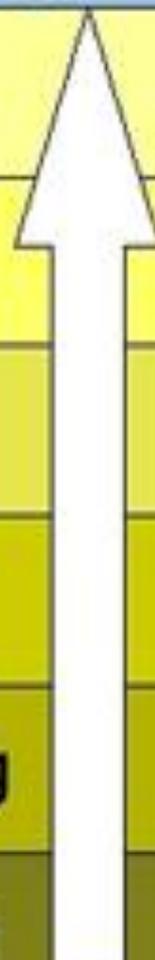
Evaluating

Analysing

Applying

Understanding

Remembering



Lower Order Thinking Skills

The Nature of the MIND

In 1969, it was established that the neural networks in the brain behave as “self-organizing system” and encourages incoming information to organize itself into series of stable states that follow one another-the formation of sequence and patterns.

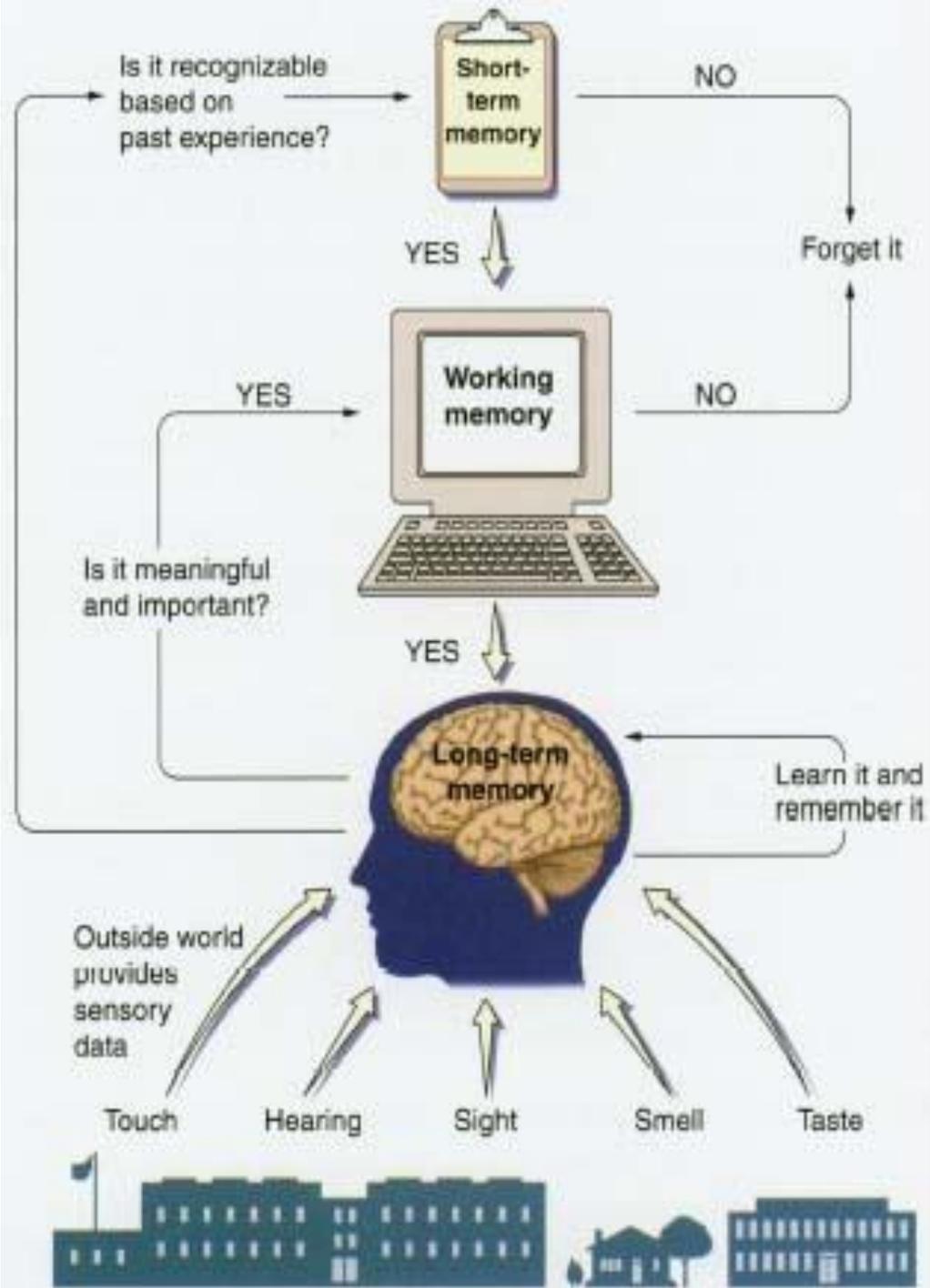


Self Organizing Systems

SELF ORGANIZING SYSTEMS SET UP PATTERNS.

ONCE WE ARE ON A PATTERN, WE HAVE NO CHOICE BUT TO FLOW ALONG THAT PATTERN.

THE PATTERNS ARE FIXED FOR A SET OF CIRCUMSTANCES, BUT IF THE CIRCUMSTANCES CHANGE THE PATTERNS CAN BE DIFFERENT.



**If the brain sets up
patterns, what can
we do?**

**AS A SELF ORGANIZING SYSTEM THE MIND ALLOWS
INCOMING INFORMATION TO ORGANIZE ITSELF INTO
ROUTINE PATTERNS. THE MIND, THEREFORE, HAS A
NATURAL BEHAVIOR OF ITS OWN.**

**HOWEVER, WE CAN INTERVENE SO THAT THIS NATURAL
BEHAVIOR IS USED MORE EFFECTIVELY FOR OUR
PURPOSES.**

**WE CAN DEVELOP ATTENTION DIRECTING TOOLS AND
STRUCTURES TO AID IN IMPLEMENTING ROUTINE
PATTERNS THAT ARE MORE EFFECTIVE THAN THE NATURAL
ONES.**



**PRO-ACTIVE
THINKING**



WHITE HAT –

Facts, figures and information. What information do we have? What information do we have? What information do we need to get?

RED HAT-

Emotions, feelings, hunches, and intuition. What do I feel about this matter right now?

BLACK HAT-

Caution. Truth, judgment, fitting the facts. Does this fit the facts? Will it work? Is it safe? Can it be done?

YELLOW HAT –

Advantages, benefits, savings. Why it can be done. Why there are benefits. Why it is a good thing to do.

GREEN HAT –

Exploration, proposal, suggestions, new ideas. Alternatives for action. What can we do here? Are there some different ideas?

BLUE HAT –

Thinking about thinking. Control of the thinking process. Summary of where we are now. Setting the next thinking step. Setting the program for thinking.

MEMORY

Long-term memory

Short-term memory
Sensory memory
Short-term/working memory

Declarative memory (explicit memory)

Nondeclarative memory (implicit memory)

Events (episodic memory)

Facts (semantic memory)

Procedural memory

Perceptual representation system

Classical conditioning

Nonassociative learning

Specific personal experiences from a particular time and place

World knowledge, object knowledge, language knowledge, conceptual priming

Skills (motor and cognitive)

Perceptual priming

Conditioned responses between two stimuli

Habituation sensitization

Medial temporal lobe
Middle diencephalon
Neocortex, especially the prefrontal cortex

Basal ganglia and cerebellum

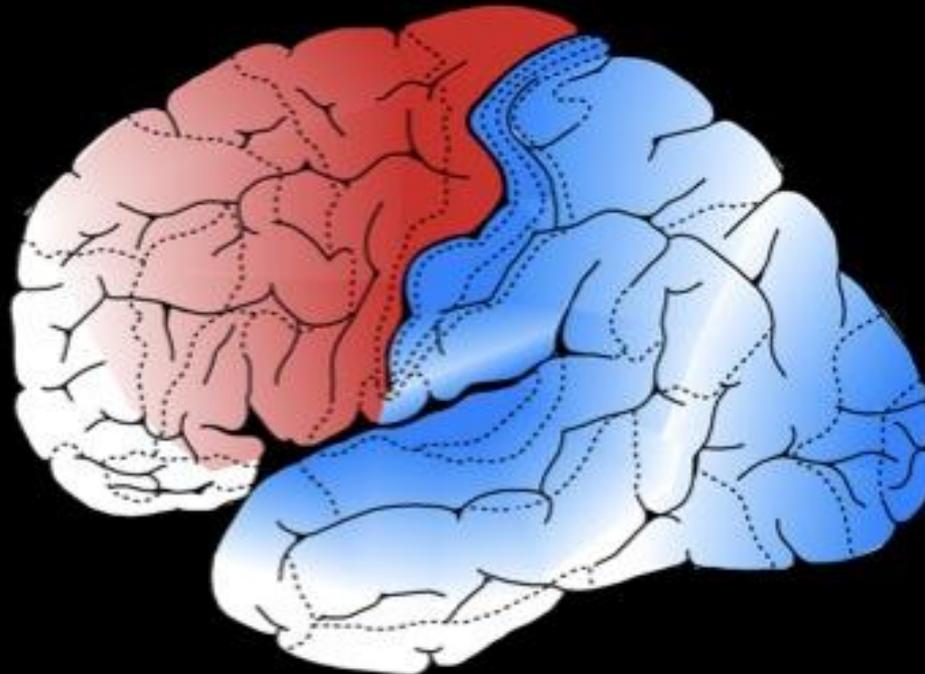
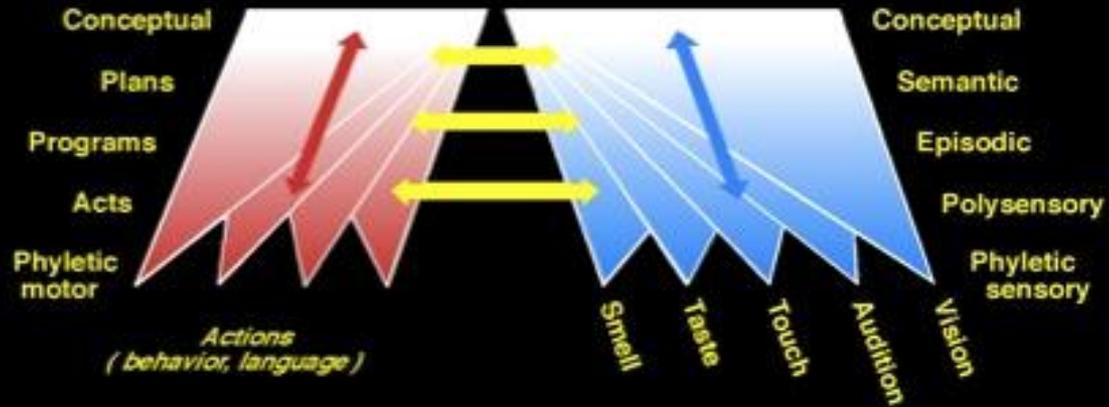
Perceptual and association neocortex

Skeletal muscle

Reflex pathways

Executive memory

Perceptual memory



Tools & Habits

HABITS

A HABIT IS A ROUTINE THAT SHOULD ALWAYS BE PRESENT AT THE BACK OF OUR MINDS NO MATTER WHAT WE ARE THINKING ABOUT.

EACH HABIT IS FRAMED AS A QUESTION WHICH THE THINKER IS SUPPOSED TO BE ASKING HIM/HERSELF AT FREQUENT INTERVALS.

TOOLS

A TOOL IS MORE DELIBERATE AND MORE FORMAL THAN A HABIT. YOU PICK UP/PUT DOWN A SPECIFIC TOOL FOR A GIVEN TASK.

UNLIKE HABITS, TOOLS ARE NOT USED THE WHOLE TIME. TOOLS CAN GIVE RISE TO HABITS.

THINKING HABITS

- **FOCUS AND PURPOSE**
 - What am I looking at right now?
 - What am I trying to do?
- **FORWARD AND PARALLEL**
 - What else might there be?
 - So what follows?
- **PERCEPTION AND LOGIC**
 - How broad a view am I taking?
 - In what other ways is it possible to look at things?
- **VALUES**
 - What are the values involved?
 - Who are affected by these values?

OUTCOMES & CONCLUSIONS

IF YOU HAVE NOT SUCCEEDED IN REACHING A CONCLUSION:

- What have I found out?
- What is the sticking point?

IF YOU REACHED A CONCLUSION:

- What is my answer?
- Why do you think my answers will work?

O&C ARE IMPORTANT HABITS FOR 2 REASONS:

- 1) TO 'HARVEST' OUR THINKING EFFORT
- 2) SENSE OF ACHIEVEMENT. WITHOUT ACHIEVEMENT, THERE IS NO MOTIVATION.

THINKING TOOLS

- 1) AIMS, GOALS & OBJECTIVES
- 2) CONSIDER ALL FACTORS
- 3) OTHER PEOPLE VIEWS
- 4) ALTERNATIVES, POSSIBILITIES AND CHOICES
- 5) FRIST IMPORTANT PRIORITIES
- 6) CONSEQUENCE AND SEQUEL
- 7) PLUS, MINUS AND INTERESTING

HOW TO PRACTICE THINKING EXERCISES

- **DEMONSTRATION-**
 - YOU, AS A PARENT/TEACHER, WORK THROUGH A PRACTICE ITEM IN ORDER TO SHOW HOW THE PARTICULAR METHOD OR TOOLS SHOULD BE USED.
- **JOINT-**
 - BOTH PARENT AND CHILD WORK THROUGH THE PRACTICE ITEMS TOGETHER – EACH OFFERING SUGGESTIONS. JOINT PERFORMANCE DOES NOT MEAN ARGUMENT OR DISCUSSION – IT MEANS WORKING TOGETHER JUST AS THE CYLINDERS OF A CAR ENGINE.
- **REQUEST-**
 - THIS IS THE NORMAL TEACHING ONE-WAY REQUEST.
- **PARALLEL-**
 - BOTH PARENT AND CHILD SEPARATELY CARRY OUT THE THINKING EXERCISE. AT THE END, THE TWO RESULTS ARE COMPARED.
- **GROUP-**
 - PARENT SETS THE TASK AND THEN THE GROUP WORKS ON IT TOGETHER.
- **WRITTEN-**
 - IN GENERAL ALL EXERCISES CAN BE DONE VERBALLY. OCCASIONALLY IT IS USEFUL TO SET A THINKING TASK AND TO ASK FOR WRITTEN OUTPUT (DIAGRAMS, ALGORITHMS, ETC)

DRAWING METHOD

IN A DRAWING A CHILD HAS TO PUT TOGETHER EXPERIENCE, FUNCTIONS, AND CONCEPTS IN A CONCRETE WAY IN ORDER TO ACHIEVE AN EFFECT.

IT IS OFTEN SURPRISING HOW COMPREHENSIVE THE THINKING OF A CHILD CAN BE IN THEIR DRAWING. THERE IS CONSIDERATION OF FACTORS, OF CONSEQUENCES, AND OF OTHER PEOPLE.

WITH A DRAWING, A CHILD WILL EXPERIENCE A SENSE OF ACHIEVEMENT THAT IS NOT PRESENT WITH A WRITTEN DESCRIPTION.

THESE ARE NOT WORKS-OF-ART, BUT 'OPERATIONAL' DRAWINGS. EACH DRAWING SHOWS HOW SOME TASK CAN BE ACHIEVED OR SOME PROBLEM SOLVED.

THE METHOD PRACTICES THE SKILL OF OPERACY AND DESIGN: HOW ONE BRINGS THINGS TOGETHER IN ORDER TO ACHIEVE SOME DESIRED EFFECT.

12 PRINCIPLES FOR THINKING

THERE ARE TWELVE PRINCIPLES FOR THINKING. SOME PRINCIPLES ARE CONCERNED WITH 'HOW WE OPERATE' THE SKILL OF THINKING, WHILE OTHERS ARE CONCERNED WITH THE 'PRACTICAL USE' OF THAT SKILL.

- 1) ALWAYS BE CONSTRUCTIVE.
- 2) THINK SLOWLY, METHODICALLY AND MAKE THINGS AS SIMPLE AS POSSIBLE.
- 3) DETACH YOUR EGO FROM YOUR THINKING AND BE ABLE TO STAND BACK TO LOOK AT YOUR THINKING.
- 4) AT THIS MOMENT, WHAT AM I TRYING TO DO? WHAT IS THE FOCUS AND PURPOSE OF MY THINKING?
- 5) BE ABLE TO 'SWITCH GEARS' IN YOUR THINKING. KNOW WHEN TO USE LOGIC, WHEN TO USE CREATIVITY, WHEN TO SEEK INFORMATION.

- 6) WHAT IS THE OUTCOME OF MY THINKING – WHY DO I BELIEVE THAT IT WILL WORK?
- 7) FEELINGS AND EMOTIONS ARE IMPORTANT PARTS OF THINKING BUT THEIR PLACE IS AFTER EXPLORATION AND NOT BEFORE.
- 8) ALWAYS TRY TO LOOK FOR ALTERNATIVES, FOR NEW PERCEPTIONS AND FOR NEW IDEAS.
- 9) BE ABLE TO MOVE BACK AND FORTH BETWEEN BROAD-LEVEL THINKING AND DETAIL LEVEL THINKING.
- 10) IS THIS A MATTER OF ‘MAY BE’ OR MATTER OF ‘MUST BE’? LOGIC IS ONLY AS GOOD AS THE PERCEPTION AND INFORMATION ON WHICH IT IS BASED.
- 11) DIFFERING VIEWS MAY ALL BE SOUNDLY BASED ON DIFFERING PERCEPTIONS.
- 12) ALL ACTIONS HAVE CONSEQUENCES AND AN IMPACT ON VALUES, PEOPLE AND THE WORLD AROUND.

Copyrighted Material

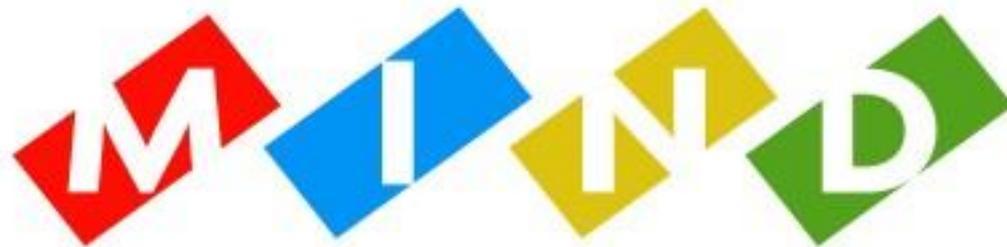


Edward de Bono

TEACH
YOUR
CHILD
HOW TO
THINK

"A practical handbook for parents to use in training their children
in effective thinking." *Library Journal*

0-14-023830-1



MIDWEST INSTITUTE FOR

**NEUROLOGICAL
DEVELOPMENT**

Dr. Worth may be contacted at:

neurodocworth@gmail.com or 636.537.9800