

A MORE EFFECTIVE WAY OF THINKING

(cognitive task analysis of learning & knowledge skills)



An Introduction to the
Human Knowledge MindMap
- William Sheridan -

613-230-9566 cypher@sympatico.ca

Learning Readiness (1): cognitive skills (modified from Elaine Gray's *Conscious Choices*, 2004)

Critical Thinking

know what influences you

distinguish fact from opinion

consider diverse viewpoints

be open to alternatives

be a problem solver

Comprehension

learn to sustain focus

develop active listening

observe situations accurately

develop a good memory

apply what you know

(many of these slides will use this split-screen approach for comparisons & contrasts)

Learning Readiness (2): affective skills

(modified from Elaine Gray's *Conscious Choice*, 2004)

Motivation

clarify your principles

specify your goals

prioritize your efforts

declare your resolve

avoid delays and distractions

Self-Mastery

develop self-awareness

become a responsible person

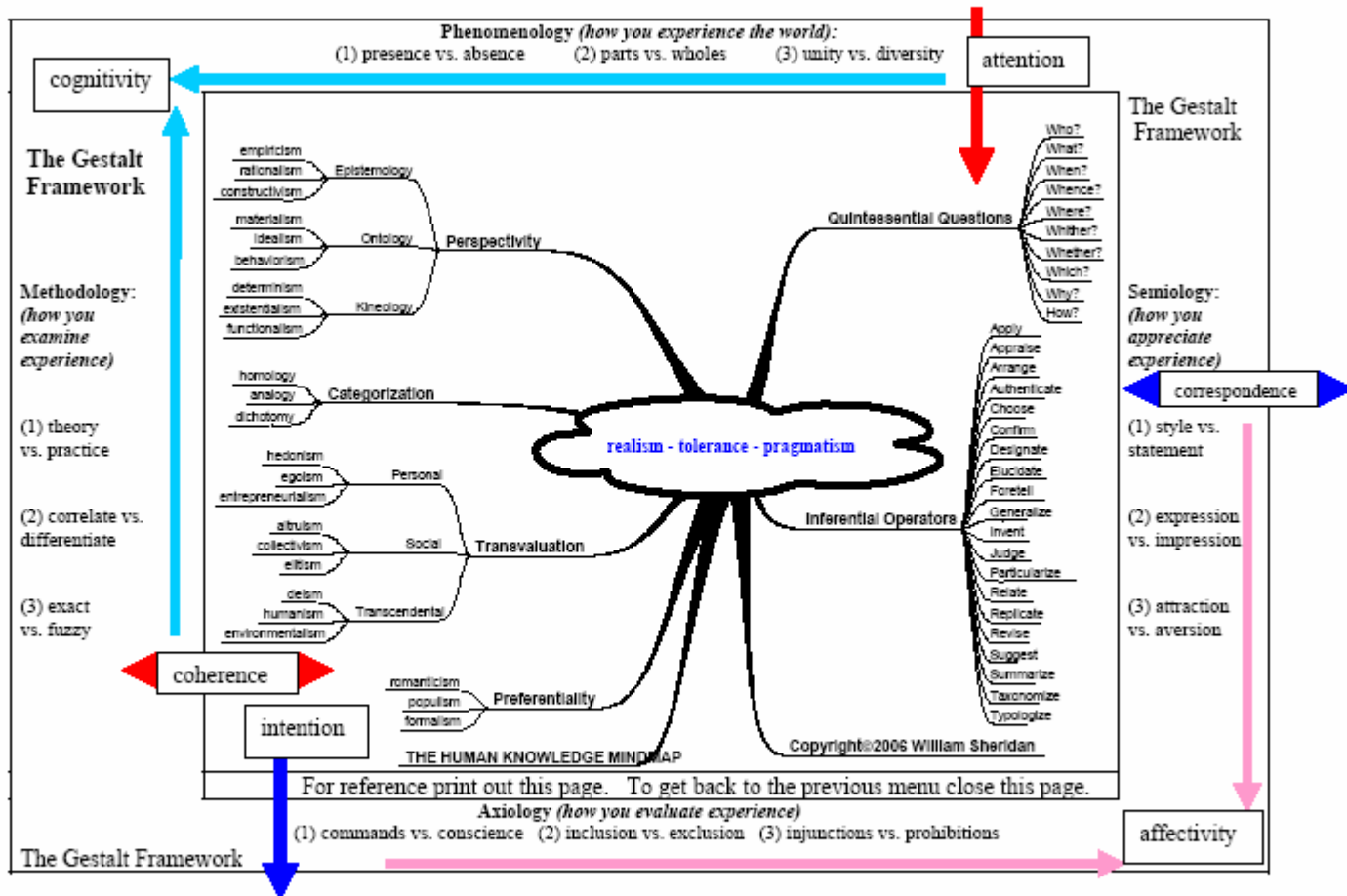
project confidence

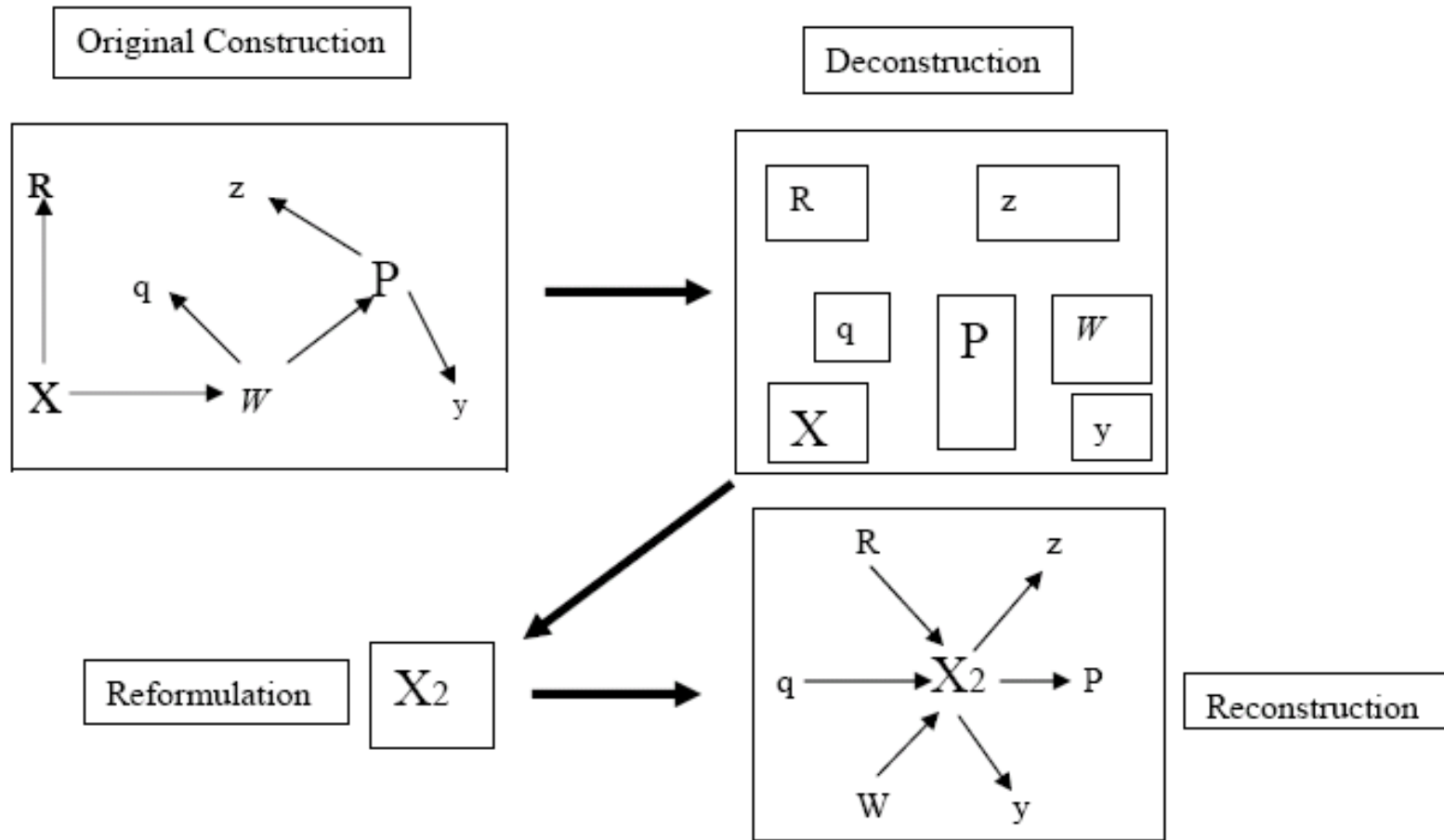
keep yourself healthy

learn to be flexible

What are your expectations for the knowledge society?

- What does “a knowledge society” mean to you?
- How do you define “the thinking process”?
- Is there a common framework to all thinking?
- Does “thinking” cover all knowledge?
- Why do you need a better way of thinking?
- How much effort does this new thinking take?
- What questions do you have for this session?
- How can this session satisfy your needs?





The Prototype of Concept R&D

A Preview of Effective Thinking:

(effective thinking requires a sequence of tasks)

Topical Processes

1. Asking questions
(which questions?)
2. Inferring explanations
(inferring how?)
3. Following implications
(following where?)

Integral Processes

- i. Checking assumptions
(whose assumptions?)
- ii. Applying premises
(why premises?)
- iii. Coordinating conclusions
(what conclusions?)



How Concept R&D Works

(Critiquing the concept of “fundamentalism”)

1. Origins of the Idea

religious resistance to change

fear of innovative ideas

political adoption (fanaticism)

social adoption (conservatism)

cultural adoption (chauvinism)

2. Deconstruction

complete faith in core beliefs

denial of fallibility or error

intolerant of other beliefs

refusal to compromise

partisan division on all issues

3. Reformulation

specifics —————> generalities

one truth —————> many options

total faith —————> detached involvement

dogmatism —————> pragmatism

orthodoxy —————> freedom of thought

4. Reconstruction: tolerance

freedom to listen (actively)

freedom to question (deeply)

freedom to create (responsibly)

freedom to explain (thoroughly)

freedom to disagree (sincerely)

Do It Yourself Example (1)

Try Using Concept R&D to help in thinking about University Education?

Current Definitions

- What do students want from a university education?
- What does society want from those with a university education?

Questioning Assumptions

- Are such expectations about university education realistic?
- What are your personal goals regarding university education?

Re-defining Issues

- What would an ideal university education provide to students?
- What would an ideal university education provide to society?

New Definitions

- Where does university education fit into life-long learning?
- Could students get more benefits from current university education?

Examples of Gestalt Framing

Perception

Naive Notions

1. Prisoners of history
2. A promising future
3. We are part of life's plan
4. The facts will decide

Fatalism or ?

Wishful thinking or ?

Concretization or ?

Personification or ?

Political Conflict

Vicious Cycles

- i. Each side blames the other
- ii. Opponents are demonized
- iii. Unconditional solidarity
- iv. Uncompromising demands

Transference or ?

Extremism or ?

Bias or ?

Provocation or ?

What are the implications of this way of thinking?

Do It Yourself Example (2)

Try using the Human Knowledge MindMap to help in thinking about Discrimination.

Perception

- What **human characteristics** does discrimination involve?
- **Does discrimination vary** between individuals and groups?

Procedures

- What is the actual **process** by which discrimination occurs?
- How can the discrimination process be **effectively studied**?

Preferences

- Is discrimination an individual **habit** or a social **pattern**?
- Do all groups practice **in-group** and **out-group** preferences?

Principles

- Does acknowledging discrimination **challenge** or **reinforce** it?
- Should discrimination be considered **inevitable** or **reversible**?

Examples of Premises

Idealism

Consensus?

1. The majority rules
2. Group solidarity
3. Public opinion
4. Political correctness

Conformism or ?

Group think or ?

Intolerance or ?

Language police or ?

Analogy

Artificial intelligence?

- i. Machine learning
- ii. Computer memory
- iii. Network decision-making
- iv. User-responsive software

Programmed heuristics or ?

Data storage or ?

Routing protocols or ?

Pattern simulation or ?

What are the implications of this way of thinking?

Do It Yourself Example (3)

Try using the Human Knowledge MindMap to help in thinking about Global Warming.

Empiricism

- What is the climatic evidence **for** and **against** global warming?
- Is the evidence **consistent**, reliable, **conclusive**, and compelling?
- What **data is missing** from the debate on global warming?

Rationalism

- What **different theories** can be used to account for global warming?
- How much of global warming is **man-made** (greenhouse gases)?
- How much **global warming occurs naturally** (changing solar flux)?

Constructivism

- Is global warming caused by both **greenhouse gases** and **solar flux**?
- What **other causes or ideas** can account for global warming?
- What **creative ideas** can be deployed to deal with global warming?

The MindMap has guidelines for asking and answering such questions!

Examples of Principles

Family Values

Focus?

1. Fatherly dominance
2. Childrens' obedience
3. Parental nurturance
4. Childrens' development

Moral authority or ?

Behaviour control or ?

Egalitarian environment or ?

Character formation or ?

Personal Lifestyles

Fulfillment?

- i. Group membership
- ii. Individual activities
- iii. Relaxation & leisure
- iv. Serious & studious

Interdependent or ?

Autonomy or ?

Frivolous or ?

Focused or ?

What are the implications of this way of thinking?

Do It Yourself Example (4)

Try using the Human Knowledge MindMap to help in thinking about Your Responsibilities.

Personal Responsibilities

- How do you decide what your personal responsibilities are?
- Have you systematically evaluated these responsibilities?
- Are your personal responsibilities aligned for effectiveness?

Social Responsibilities

- Who decides what your social responsibilities are?
- How do you resolve conflicting social responsibilities?
- What about conflicts between personal and social responsibilities?

Transcendental Responsibilities

- What larger responsibilities do you acknowledge?
- How do you resolve conflicting transcendental responsibilities?
- What about transcendental and other responsibility conflicts?

Instrumental Concepts

The Role of QUESTIONS:

(narrowing the possibilities)

Questioning is the art of narrowing the field of possibilities down from the full range of options to a manageable set with which you can deal.

Who? (demographics)

Whither? (destination)

What? (identify)

Whether? (alternatives)

When? (timeliness)

Which? (choices)

Whence? (origins)

Why? (intentions)

Where? (location)

How? (methodologies)

(use only those questions that will answer your “need to know”)

The Function of Inferences (1)

(producing plausible processes)

What else can you do with knowledge besides **questioning, describing, and explaining?** You can also plan by extrapolating or interpolating from what you know to reasonable conclusions.

Apply (procedures)

Appraise (utility)

Arrange (organize)

Authenticate (validate)

Choose (select)

Confirm (verify)

Designate (specify)

Elucidate (elaborate)

Foretell (predict)

Generalize (overview)

(use only those inferences that will provide relevant conclusions)

The Function of Inferences (2)

(producing plausible processes)

What happens when there is no “one best inference”, but rather a choice between several equally plausible alternatives? In that case, go for the inference that gives the best explanation.

Invent (originate)

Judge (decide)

Particularize (details)

Relate (associate)

Replicate (copy)

Revise (change)

Suggest (propose)

Summarize (condense)

Taxonomize (classify)

Typologize (categorize)

(use only those inferences that will provide relevant conclusions)



Integrating Elements

(looking at the **coloured** lines)

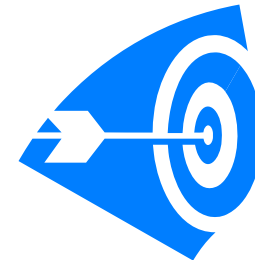
(“character” is the judgment to balance integration)



The pointers towards **cognitivity** indicate that **phenomenology** and **methodology** are predominantly intellectual processes. The pointers towards **affectivity** suggest that **semiology** and **axiology** are predominantly emotional processes.

Attention is focused awareness of the **senses**, and **Intention** is the **purpose** of forthcoming action.

Correspondence concerns the **resemblance** between our perceptions and our environment, and **Coherence** involves **aligning** our perceptions and our knowledge.



Example Question, Inference, and Integration

Why?

Study?

Personal uncertainty

Social change

Information society

Knowledge work

Too many facts

Superficiality

Symbolic analysis

Skills in thinking →

Apply

MindMap?

Explanations

Predictions

Expertise

Concept R&D

Framework

Insight →

Flexibility

Creativity →

Intention

Life-Long Learning?

Makes Sense

Patterns

Opportunities

Competence

Comprehension

Foresight

Transferability

Marketability

Do It Yourself Example (5)

Try using the Human Knowledge MindMap to help in thinking about Interpersonal Conflicts.

Questions

- What is **the basis of interpersonal conflicts** (social, psychological)?
- What are **the issues** around which such conflicts are focused?
- Are such conflicts moderate or serious, **resolvable** or **irresolvable**?

Inferences

- Does **how you appraise others** influence the likelihood of conflicts?
- Could you **choose to resolve or avoid** conflicts as a strategy?
- Can you resolve serious conflicts by **revising your attitude** to others?

Intentions

- What do you **hope to gain** by maintaining or resolving conflicts?
- What are the **costs and tradeoffs** of how you handle conflicts?
- How does the way you handle conflicts relate to **your other goals**?

A Review of Effective Thinking:

(effective thinking requires a sequence of tasks)

Topical Processes

1. Asking questions
(which questions?)
2. Inferring explanations
(inferring how?)
3. Following implications
(following where?)

Integral Processes

- i. Checking assumptions
(whose assumptions?)
- ii. Applying premises
(why premises?)
- iii. Coordinating conclusions
(what conclusions?)



Discerning Knowledge

- He who knows not, and knows not that he knows not, is a fool – avoid him.
- He who knows, and knows not that he knows, is asleep – awaken him.
- He who knows not, and knows that he knows not, is a student – teach him.
- He who knows, and knows that he knows, is a wise man – follow him.

- a Sufi Sage

You gotta really wanna!

You can lead horses to water,

But you can't make them drink;

You can point people to knowledge,

But you can't make them think!

- Anonymous