

Learning Theories



**S.E. Regional Seminar
IT Carlow**

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WIT

Importance of Learning Theories

- Confirmation of best practice
- Distillation of experience
- Legitimisation of queried practice
- Conceptual coherence
- Practices rely on principles

Nothing as practical as a good theory



Pavlov



Thorndyke



Watson



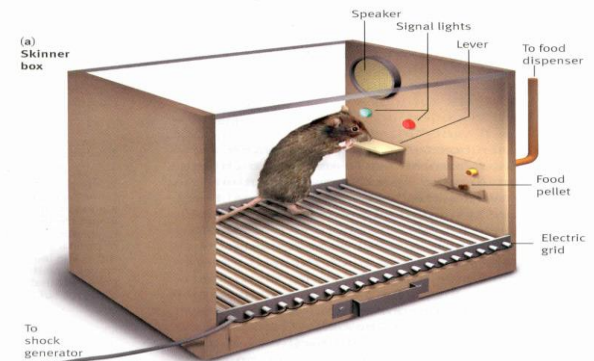
Skinner



Gagné

Behaviourism

- Origin in 19C. Experimental psychology
- Pavlov, Thorndyke, Watson, Skinner, Gagné
- Theory is a theory of learning
- Stimulus-response, reinforcement
- Conditioning of passive organism
- Ubiquity in education and training



Implications of Behaviourism

Explicit statements of what learner will be able to do



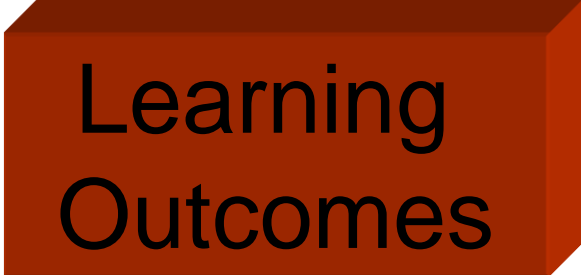
Efficiency

Outcomes specified



Predictability

Pre-determined



Learning
Outcomes



Calculability

Number of LOs specified

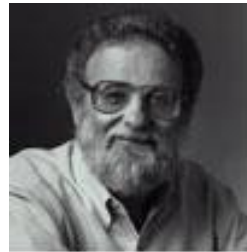
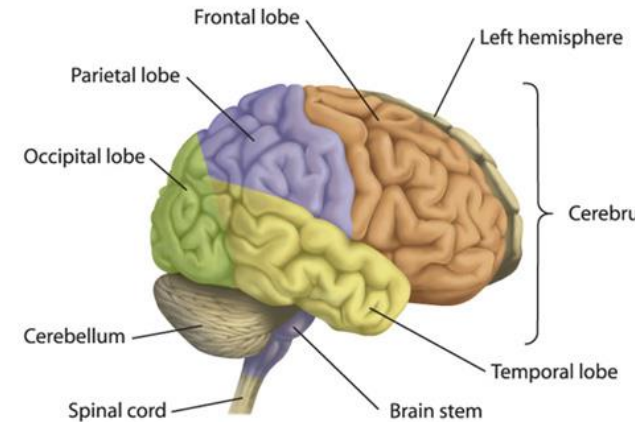


Control

Teaching method directed
and assessment directed

Cognitivism

- Interest in mental processes
- ‘Black box’ theories
- Driven by interest in functional mental processes
- AI modelling and information-processing
- Particular interest in attention, perception, memory, concept development, developmental psychology, neuro-biology.



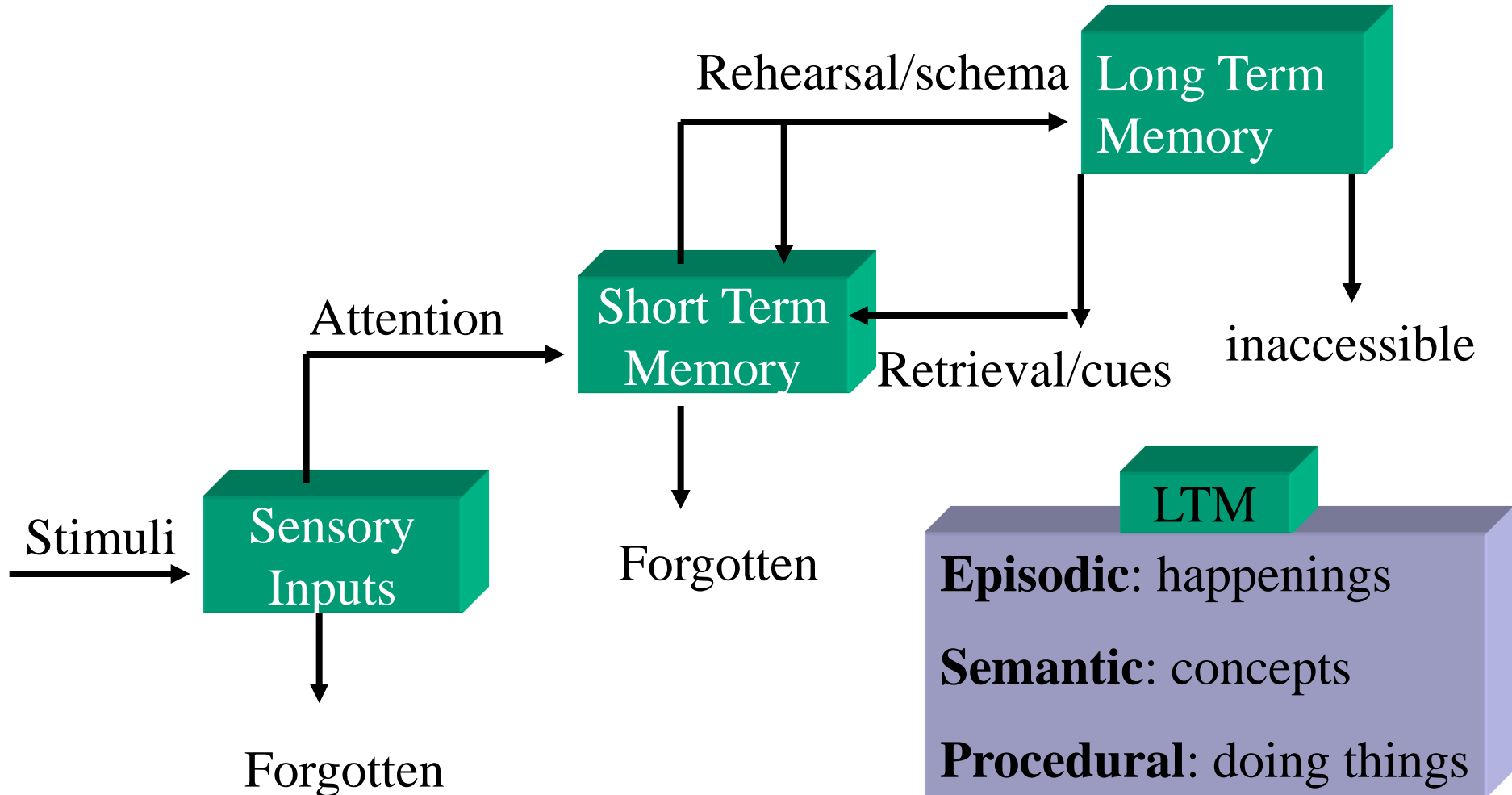
Donald
Norman

Mental Processing



George
Miller

STM / LTM Model



Disequilibrium

Importance of conflict and disequilibrium in construction of cognitive changes



Piaget

Processes of learning

Knowledge acquisition

Knowledge

transformation

Knowledge review

Modes of learning

Enactive

Iconic

Symbolic



Bruner

Social processes

Mental activity as internalisation of external experiences

Learning supported by 'expert' - ZPD



Vygotsky

Implications of Cognitivism for Teaching

- **Perception**

- Define and structure materials
- Review knowledge and point out patterns
- Use multiple coding

- **Attention**

- Arouse initial interest
- Direct attention when competing impressions
- Vary teaching methods with activities etc
- Guide thinking with questions

- **Memory**

- Link materials to cues for retrieval
- Use mnemonics
- Revise topics to strengthen retention

Constructivism

Mind constructs knowledge and meaning

Learner has to actively construct

Not one theory but an amalgam

Trivial constructivism

Knowledge is actively constructed by the learner, not passively received from the environment (Piaget)



Social and cultural constructivism

Reality is constructed through human activity. Meaningful learning occurs when individuals are engaged in social activities. (Bandura)



Hofstede's Cultural Dimensions

Power Distance	The extent to which people without power accept the unequal distribution of that power
Individualism	The extent to which the individual is more important than the group
Masculinity	The extent to which the roles of men and women are different with little or no overlap
Uncertainty avoidance	The extent to which people wish to reduce uncertainty through predictability and clear rules
Long-term orientation	The extent to which people attach importance to a long-term future rather than to the present

Questions for the Teacher

Power Distance	How is power distributed in the classroom? How do students respond to power distribution?
Individualism	How is teaching directed at individuals or groups? How cohesive is the class group?
Masculinity	How does teacher treat gender relations? How much does gender influence learning?
Uncertainty avoidance	How explicit are rules and procedures? How do students perceive rules and procedures?
Long-term orientation	How so teachers explain aims and long-term goals? How willing are students to persevere?

Implications of Constructivism

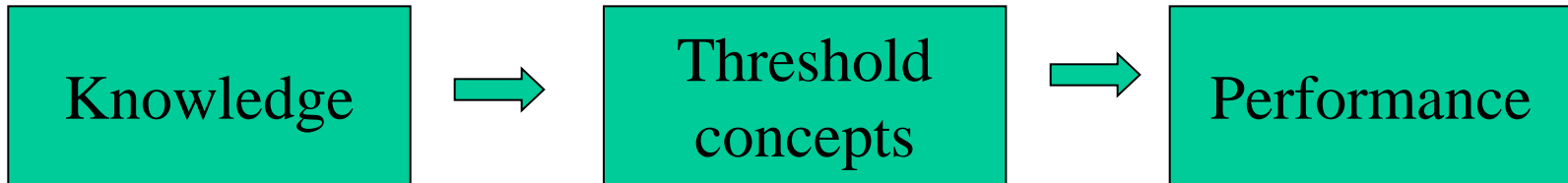
- Emphasis on meaning and understanding
- Identification of students' strengths and styles
- Variety of teaching methods to address all
- Attention to cultural inclusivity
- Use of problem-based learning
- Authentic assessment practices
- Attention to stages of epistemological development
 - see handout



Marcia Baxter
Magolda

Disciplinary Knowledge

Performance demands disciplinary knowledge



Transformative

Changes a student's perception of a subject

Irreversible

Once understood, unlikely to be forgotten

Integrative

Exposes hidden connections in a subject

Bounded

Helps to define a subject as different

Troublesome

Often initially difficult or counter-intuitive



Jan Meyer



Ray Land

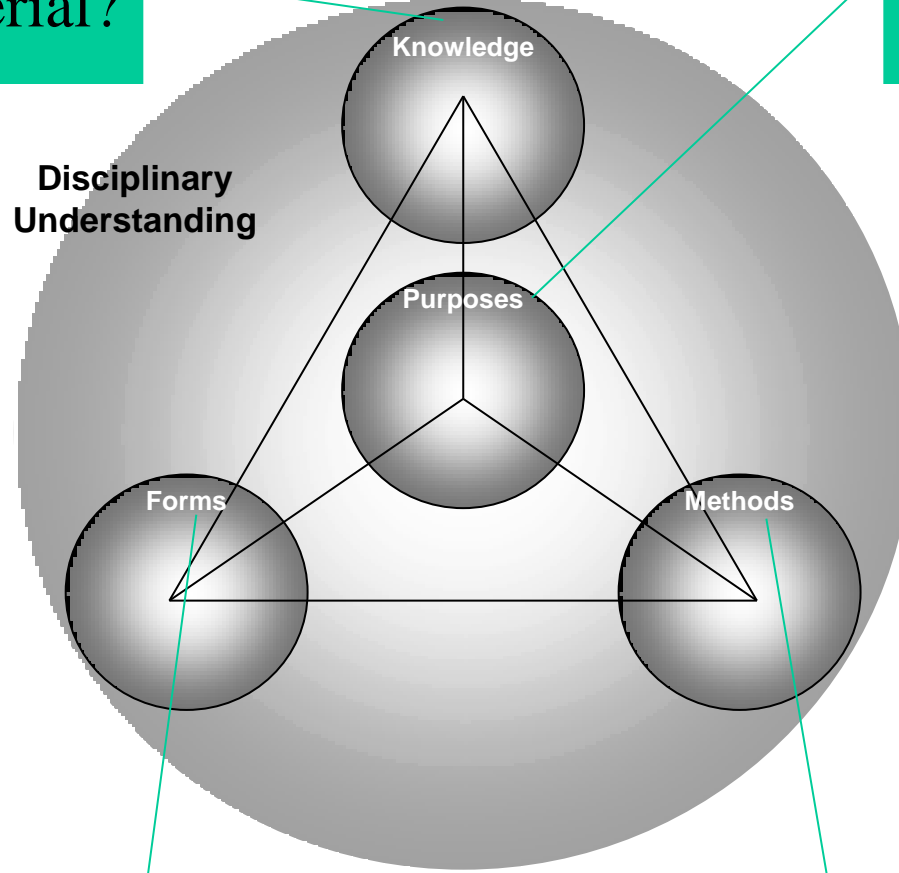
Teaching for Understanding

Element	Characteristic
Disciplinary Knowledge	Main topics that are central to discipline need to be understood
Understanding goals	Public statements of what teachers want students to understand
Performance	Methods and opportunities for developing performance of understanding
Assessment	On-going assessment of understanding

Dimensions of Understanding

What is the material?

Why is it done?



How is it expressed?

How is it done?

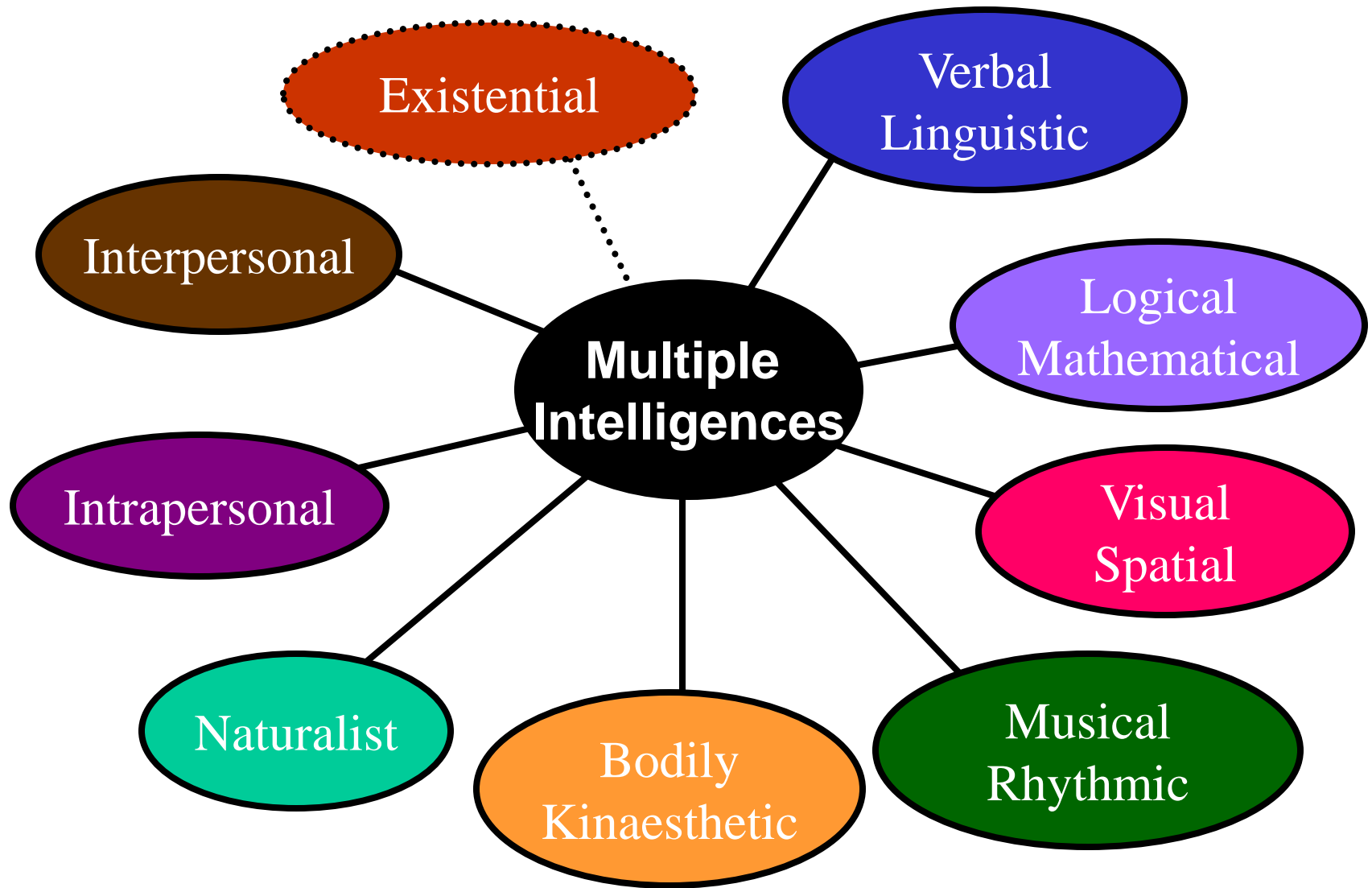
Implications of Disciplinary Knowledge

- Importance of threshold concepts
- Focus on teaching for understanding
- Knowledge, goals, performance and assessment
- Dimensions of understanding
 - Knowledge, purposes, methods and forms
- Development from novice to expert
 - See Handout

Multiple Intelligences Theory

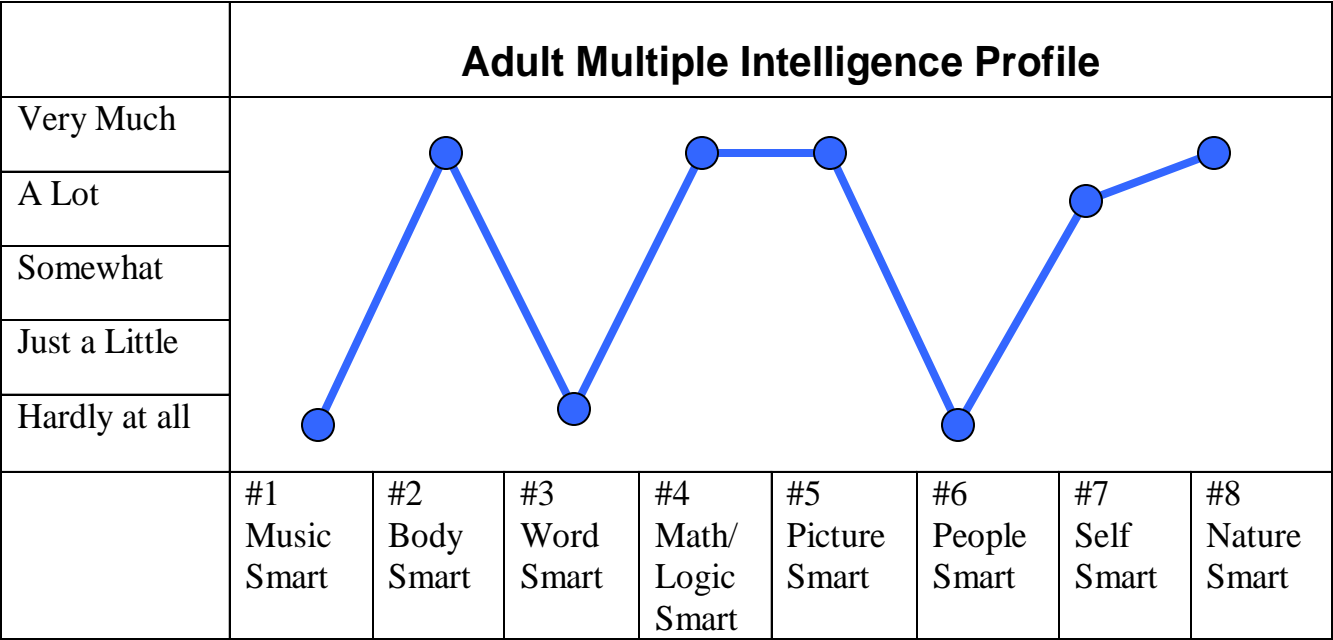
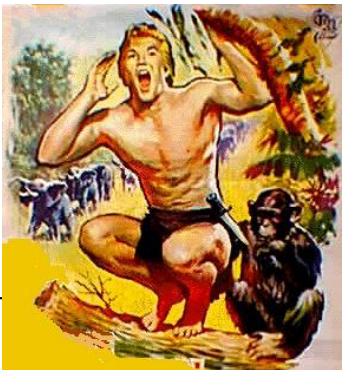


- Different definition of intelligence
- Attack on IQ testing
- 7-9 different types of intelligence
- Everyone has ‘jagged intelligence profile’
- Implications for teachers
- Challenges to MI theory



Multiple Intelligence Profile

NAME Tarzan

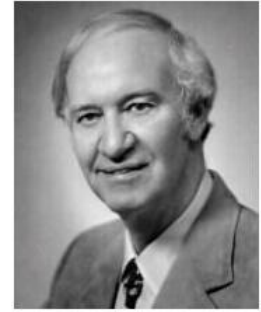


Learning Styles

- Not to be confused with Multiple Intelligences (Gardner)
- Not innate
- Preferences in style and modality of learning
- Honey & Mumford & Vark Instruments
- Implications for teaching



Andragogy



Malcolm
Knowles

- Adults learn differently from children
- Adult teacher should be facilitator
- Necessary to acknowledge adult needs, experience
- Use adults as resource
- Adults expect knowledge to be useful

Activity

- Re-read the case studies and the related issues
- Consider how the theories presented here can be used to understand or address them