

## Teaching & Learning Centre

### 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

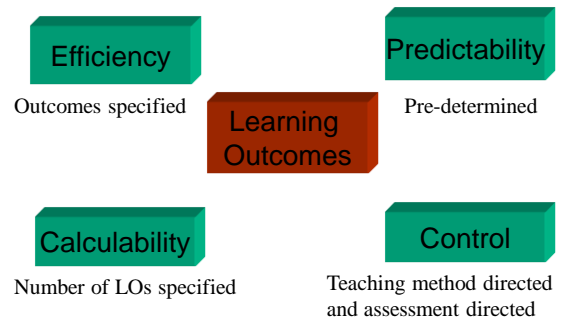
### Behaviourism

- 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



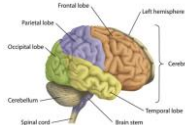
### Implications of Behaviourism

Explicit statements of what learner will be able to do



### 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.



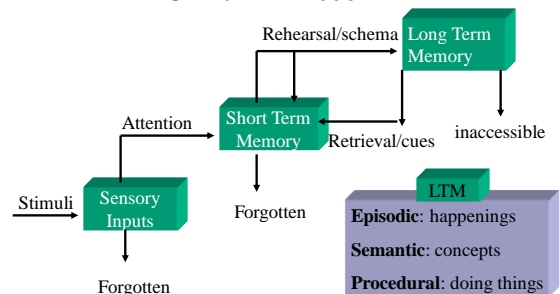
Donald Norman

### 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

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

## Questions for the Teacher

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

## Implications of Constructivism

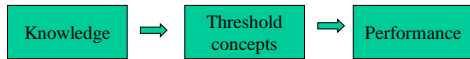
- Emphasis on meaning and understanding
- Identification of students' strengths and styles
- Variety of teaching methods to address all
- Attention to cultural inclusivity
- Use of problem-based learning
- Authentic assessment practices
- Attention to stages of epistemological development
  - see handout



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

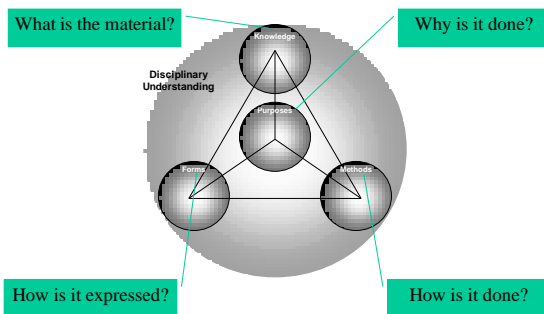


Ray Land

## 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

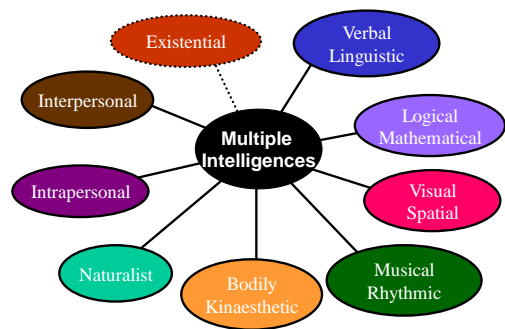


## Implications of Disciplinary Knowledge

- 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

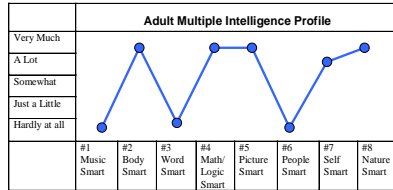
- Different definition of intelligence
- Attack on IQ testing
- 7-9 different types of intelligence
- Everyone has 'jagged intelligence profile'
- Implications for teachers
- Challenges to MI theory



## 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