Theories of learning

Unit 4

Applied Linguistics

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(Sources are in slide 40)

Broad Goals

1. Operationally define terms relevant to theories of learning.

2. Examine learning theories that are currently important.

Definitions: Learning is:

1. "a persisting *change* in human performance or performance potential . . . (brought) about as a result of the learner's interaction with the environment" (Driscoll, 1994, pp. 8-9).

2. "the relatively permanent *change* in a person's knowledge or behavior due to experience" (Mayer, 1982, p. 1040).

3. "an enduring *change* in behavior, or in the capacity to behave in a given fashion, which results from practice or other forms of experience" (Shuell, 1986, p. 412).

Learning Theory

Q: How do people learn?

A: Nobody really knows.

But there are 6 main theories:

Behaviorism

Cognitivism

Social Learning Theory

Social Constructivism

Multiple Intelligences

Brain-Based Learning

Behaviorism

Confined to observable and measurable behavior

- Classical Conditioning - Pavlov

- Operant Conditioning - Skinner

Behaviorism
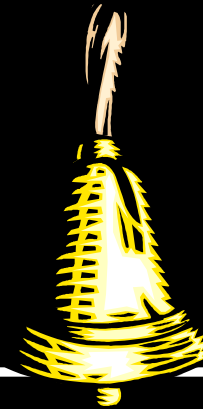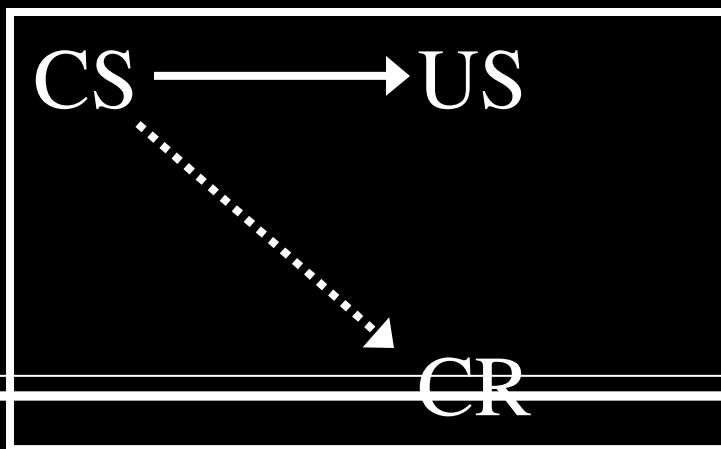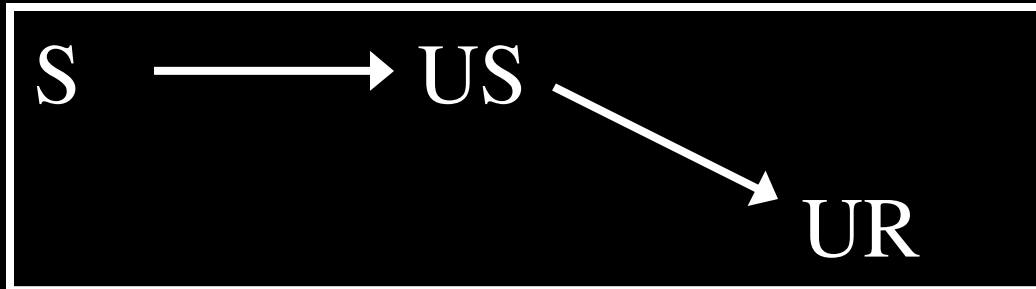
- Classical Conditioning - Pavlov

A stimulus is presented
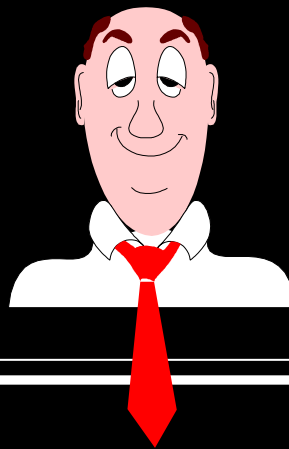in order to get a response:

S ⟶ R

Behaviorism

- Classical Conditioning - Pavlov

S ⟶ US

US ⟶ UR

CS ⟶ US

CS ⟶ CR

Behaviorism

- Operant Conditioning - Skinner

> The response is made first,
> then reinforcement follows.

Behaviorism

- Learning is defined by the outward expression of new behaviors

- Focuses solely on observable behaviors

- A biological basis for learning

- Learning is context-independent

- Classical & Operant Conditioning
  - Reflexes (Pavlov's Dogs)
  - Feedback/Reinforcement (Skinner's Pigeon Box)

Behaviorism in the Classroom

- Rewards and punishments

- Responsibility for student learning rests squarely with the teacher

- Lecture-based, highly structured

Critiques of Behaviorism

- Does not account for processes taking place in the mind that cannot be observed

- Advocates for passive student learning in a teacher-centric environment

- One size fits all

- Knowledge itself is given and absolute

- Programmed instruction & teacher-proofing
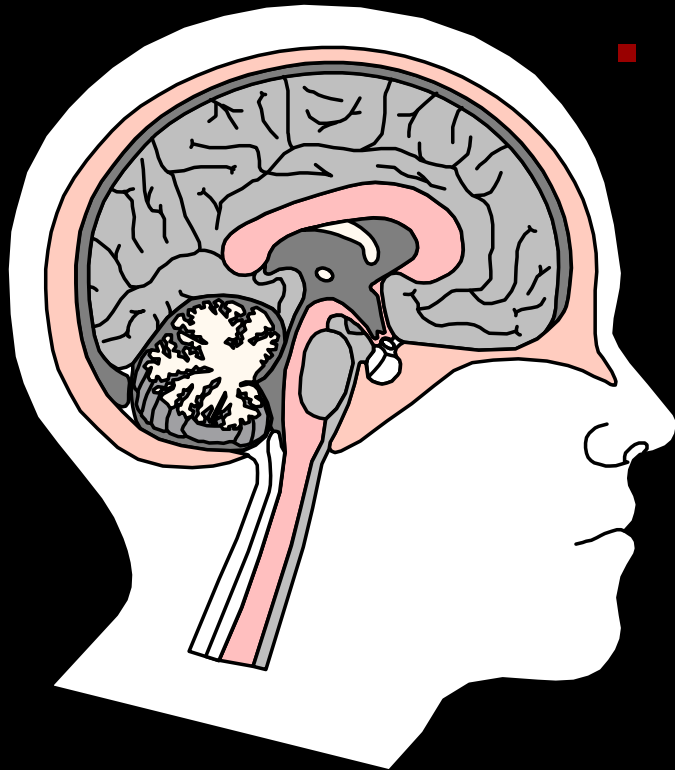
Learning Theory

- **Behaviorism**
- **Cognitive Learning Theory**
- **Social Learning Theory**
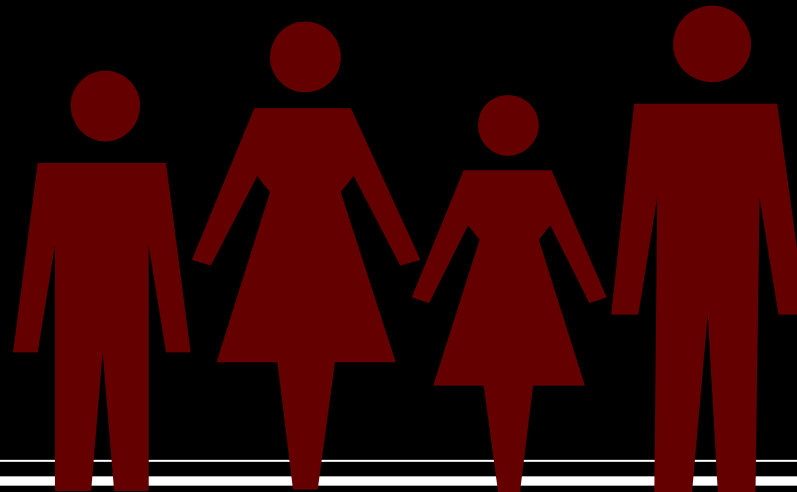
Cognitivism

- Grew in response to Behaviorism

- Knowledge is stored cognitively as symbols

- Learning is the process of connecting symbols in a meaningful & memorable way

- Studies focused on the mental processes that facilitate symbol connection

Cognitive Learning Theory
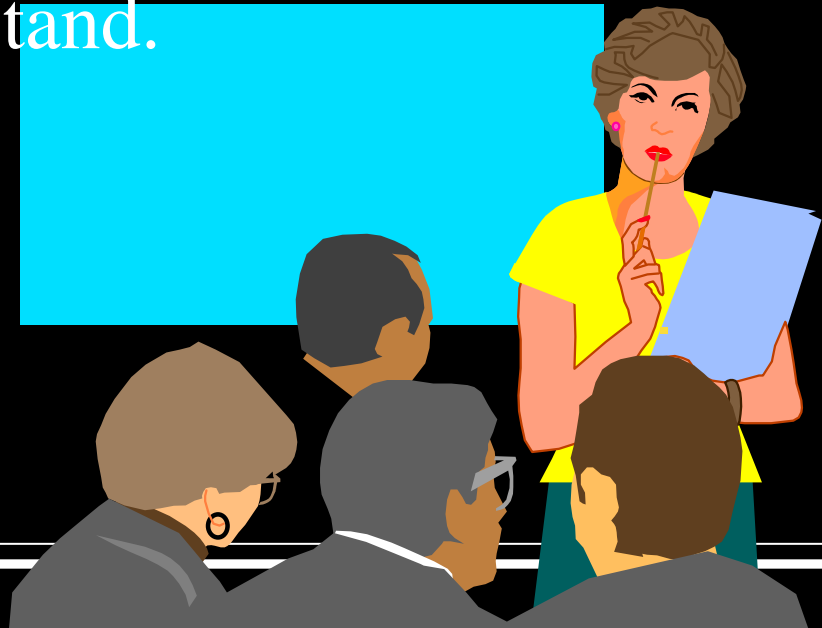
- Discovery Learning - Jerome Bruner

  Meaningful Verbal Learning - David Ausubel

Cognitive Learning Theory

- Discovery Learning

  1. Bruner said anybody can learn anything at any age, provided it is stated in terms they can understand.
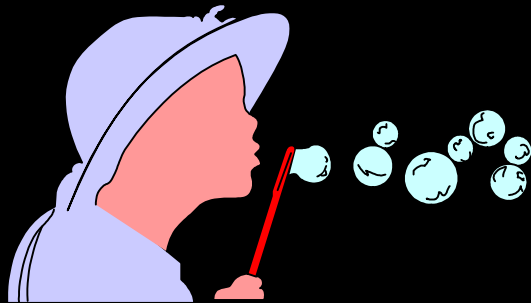
Cognitive Learning Theory

- Discovery Learning

  2. Powerful Concepts (not isolated facts)

  a. Transfer to many different situations
  b. Only possible through Discovery Learning
  c. Confront the learner with problems and help
     them find solutions. Do not present
     sequenced materials.

Cognitive Learning Theory

- **Meaningful Verbal Learning**

Advance Organizers:

New material is presented in a systematic way, and is connected to existing cognitive structures in a meaningful way.
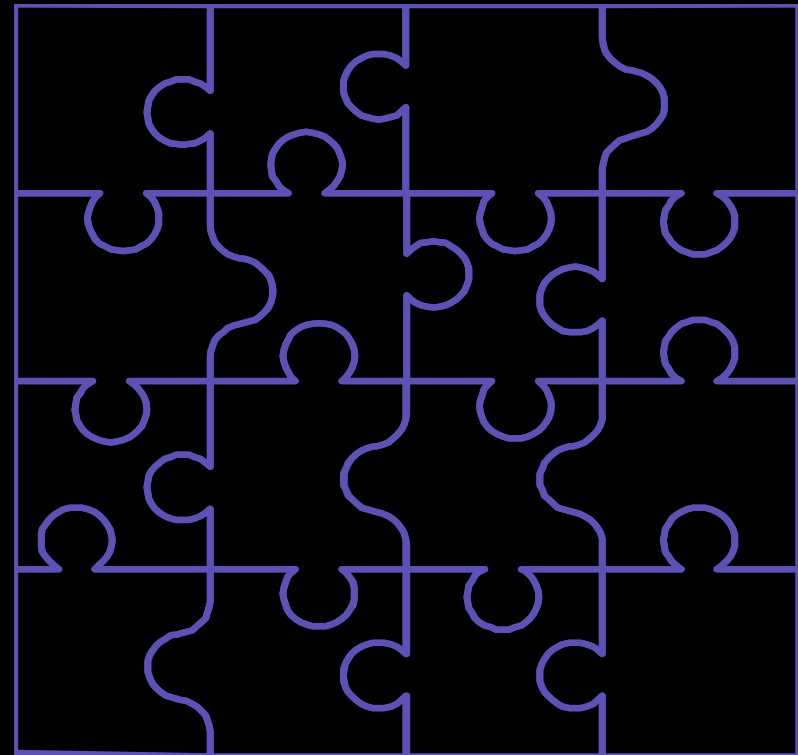
Cognitive Learning Theory

- Meaningful Verbal Learning

When learners have difficulty with new material, go back to the concrete anchors (Advance Organizers). Provide a Discovery approach, and they'll learn.
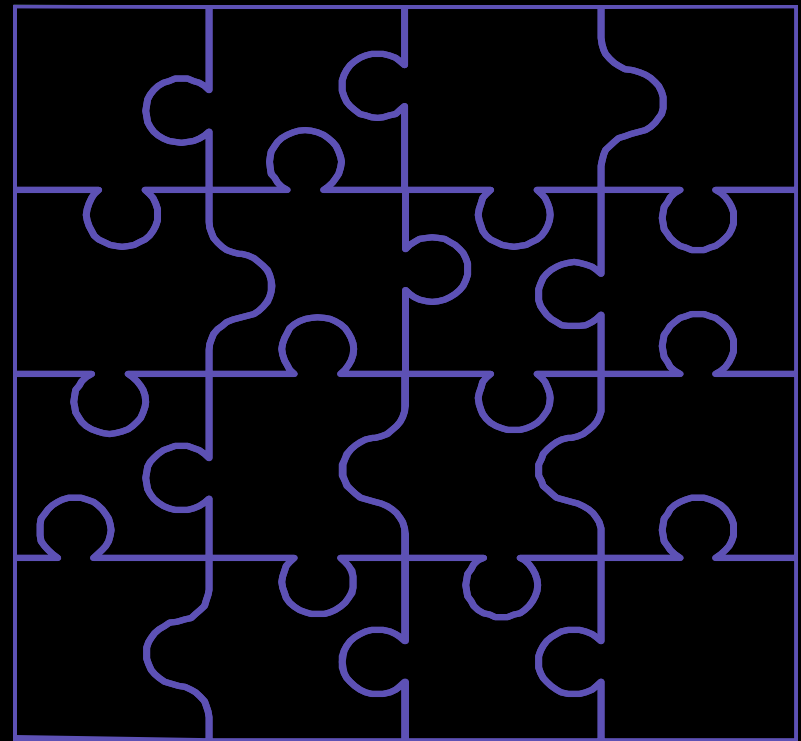
Cognitivism in the Classroom

- Inquiry-oriented projects

- Opportunities for the testing of hypotheses

- Curiosity encouraged

- Staged scaffolding

Critiques of Cognitivism

- Like Behaviorism, knowledge itself is given and absolute

- Input – Process – Output model is mechanistic and deterministic

- Does not account enough for individuality

- Little emphasis on affective characteristics

Learning Theory

- **Behaviorism**
- **Social Learning Theory**
- Cognitive Learning Theory

Social Learning Theory (SLT)

- Grew out of Cognitivism

- A. Bandura (1973)

- Learning takes place through observation and sensorial experiences

- Imitation is the sincerest form of flattery

- SLT is the basis of the movement against violence in media & video games

Social Learning Theory

Learning From Models -
Albert Bandura

1. Attend to pertinent clues
2. Code for memory (store a visual image)
3. Retain in memory
4. Accurately reproduce the observed activity
5. Possess sufficient motivation to apply new learning

Social Learning Theory

Research indicates that the following factors influence the strength of learning from models:

1. How much power the model seems to have
2. How capable the model seems to be
3. How nurturing (caring) the model seems to be
4. How similar the learner perceives self and model
5. How many models the learner observes

Social Learning Theory

Four interrelated processes establish and strengthen identification with the model:

1. Children want to be like the model
2. Children believe they are like the model
3. Children experience emotions like those the model is feeling.
4. Children act like the model.

Social Learning Theory

Through identification, children come to believe they have the same characteristics as the model.

When they identify with a nurturant and competent model, children feel pleased and proud.

When they identify with an inadequate model, children feel unhappy and insecure.

SLT in the Classroom

- Collaborative learning and group work

- Modeling responses and expectations

- Opportunities to observe experts in action

Critiques of Social Learning Theory

- Does not take into account individuality, context, and experience as mediating factors

- Suggests students learn best as passive receivers of sensory stimuli, as opposed to being active learners

- Emotions and motivation not considered important or connected to learning

Social Constructivism

- Grew out of and in response to Cognitivism, framed around metacognition

- Knowledge is actively constructed

- Learning is…
  - A search for meaning by the learner
  - Contextualized
  - An inherently social activity
  - Dialogic and recursive
  - The responsibility of the learner

- Lev Vygotsky
  - Social Learning
    - Zone of Proximal Development

Social Constructivism in the Classroom

- Journaling

- Experiential activities

- Personal focus

- Collaborative & cooperative learning

Critiques of Social Constructivism

- Suggests that knowledge is neither given nor absolute

- Often seen as less rigorous than traditional approaches to instruction

- Does not fit well with traditional age grouping and rigid terms/semesters

Multiple Intelligences (MI)

- Grew out of Constructivism, framed around metacognition

- H. Gardner (1983 to present)

- All people are born with eight intelligences:

1. Verbal-Linguistic	5. Musical
2. Visual-Spatial	6. Naturalist
3. Logical-Mathematical	7. Interpersonal
4. Kinesthetic	8. Intrapersonal.

- Enables students to leverage their strengths and purposefully target and develop their weaknesses

MI in the Classroom

- Delivery of instruction via multiple mediums

- Student-centered classroom

- Authentic Assessment

- Self-directed learning
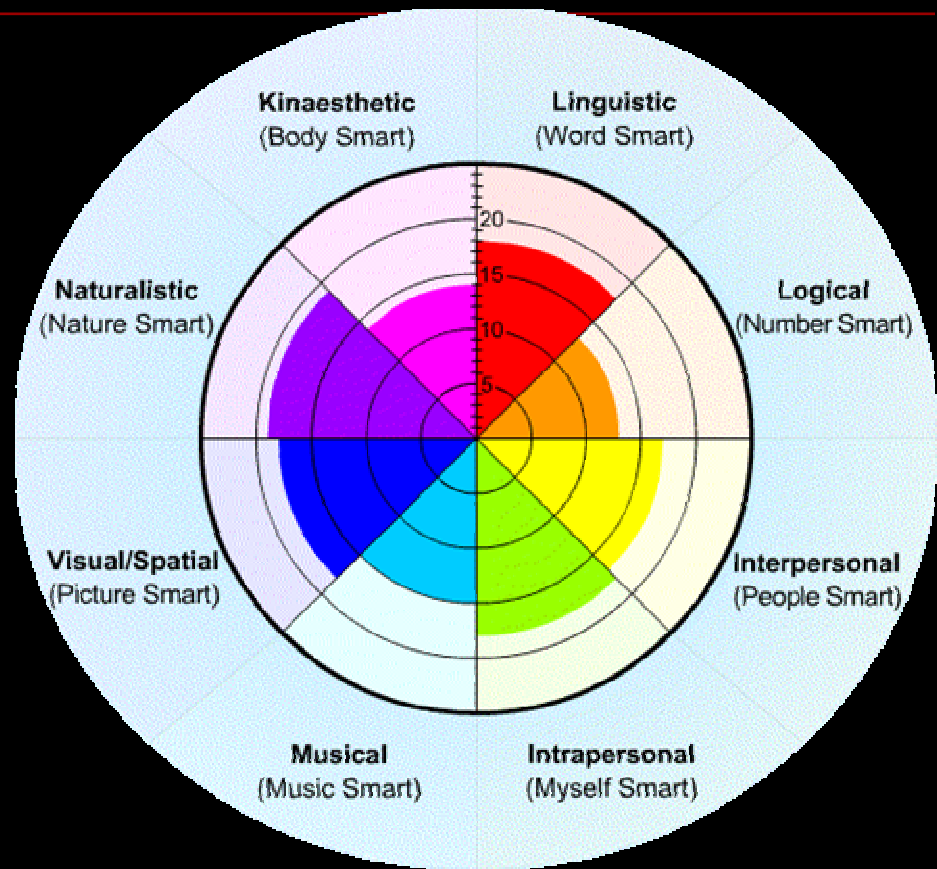
Critiques of MI

- Lack of quantifiable evidence that MI exist

- Lack of evidence that use of MI as a curricular and methodological approach has any discernable impact on learning

- Suggestive of a departure from core curricula and standards

Brain-Based Learning (BBL)

- Grew out of Neuroscience & Constructivism

- D. Souza, N. Caine & G. Caine, E. Jensen (1980's to present)

- 12 governing principles

1. Brain is a parallel processor	7. Focused attention & peripheral perception
2. Whole body learning	8. Conscious & unconscious processes
3. A search for meaning	9. Several types of memory
4. Patterning	10. Embedded learning sticks
5. Emotions are critical	11. Challenge & threat
6. Processing of parts and wholes	12. Every brain is unique

BBL in the Classroom

- Opportunities for group learning

- Regular environmental changes

- A multi-sensory environment

- Opportunities for self-expression and making personal connections to content

- Community-based learning

Parts of the brain and what they do

FRONTAL LOBE   **PARIETAL LOBE**

OCCIPITAL LOBE

Movement

Sensation

Sensory perception
Spatial relations

Thought
Rasoning
Behaviour
Memory

Hearing

Left - speech,
motion, sensation*
Right - abstract concepts*

Behaviour
Memory
Hearing &
Vision Pathways
Emotion

Smell

Vision

TEMPORAL LOBE

Pons

Medulla

Cerebellum
(Balance
Coordination)

* - For right handed individuals
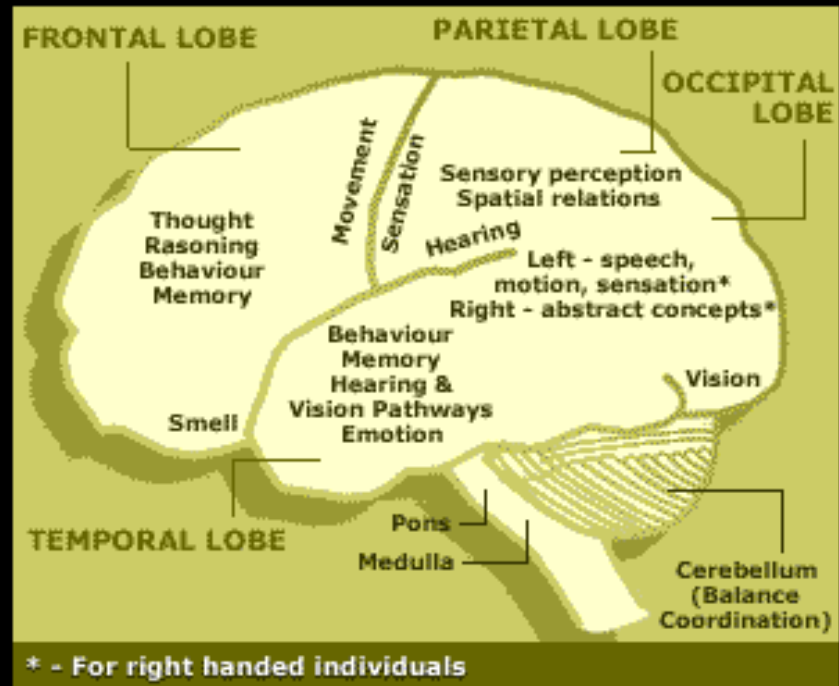
Critiques of BBL

- Research conducted by neuroscientists, not teachers & educational researchers

- Lack of understanding of the brain itself makes "brain-based" learning questionable

- Individual principles have been scientifically questioned

Other Learning Theories of Note

- Andragogy (M. Knowles)

- Flow (M. Czikszentmihalyi)

- Situated Learning (J. Lave)

- Subsumption Theory (D. Ausubel)

- Conditions of Learning (R. Gagne)

Humanist

- All students are intrinsically motivated to self actualize or learn
- Learning is dependent upon meeting a hierarchy of needs (physiological, psychological and intellectual)
- Learning should be reinforced.

■ Sources:

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