Intro to Learning Sciences

Lectures 19 and 20, October 21 and 23, 2025

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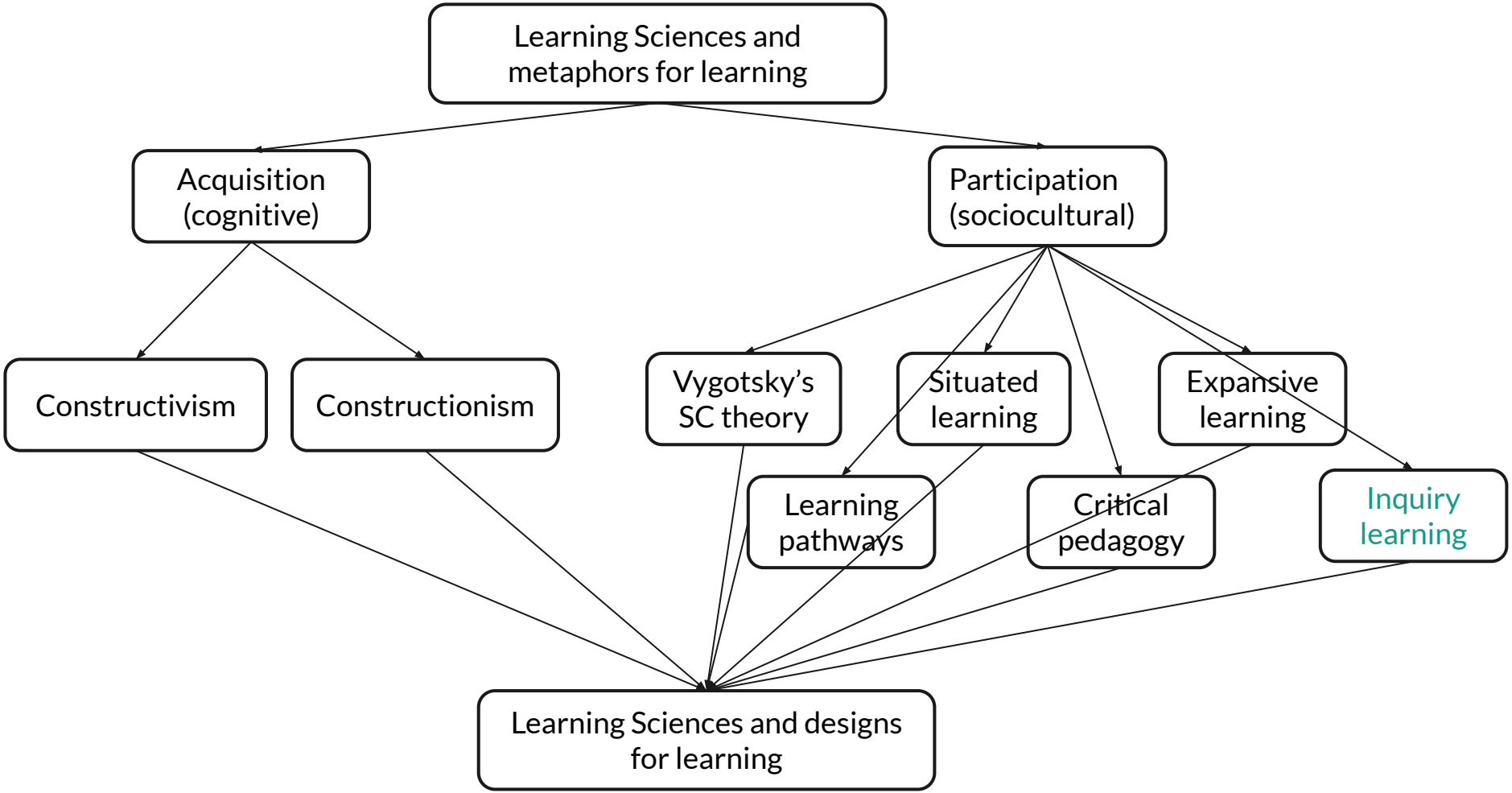
What did we do last time?

1. Paulo Freire's banking model and problem posing model
2. Banking model - students are empty vessels and passive learners, teachers have knowledge and transmit the knowledge to the "safe" of the students mind
3. Problem posing model - Teacher and student should discuss and create the knowledge
    a. Revolves around praxis - action and reflection
    b. Dialogue is the key process of knowledge construction
4. Debate: Can scientific knowledge be objective?
5. Teacher - student activity: teacher is controlling the activity and the knowledge
    a. Comparison to problem posing and banking model

[RECAP] Problem-posing education and their connection to Vygotsky's theories

- Simply replacing the *content* of teaching (from power to counter-power ideas) does not unsettle the ideas that sustain an unequal society - practice in classrooms is important
- Goal of education is developing tools to analyse and transform the world through social action
- Central role of praxis - continual movement between reflection and action
- How we teach is just as important as what we teach
    - Organization of learning, social relations, mediating forms (curriculum is one of these)
- Focus on how social relations are constituted, how power and ideologies are present in practices, how tools limit or expand opportunities and how students develop as thinkers and actors
    - Language mediates and transforms human activity
- People are social and historical beings - individual thought and action is inextricably linked to sociocultural contexts - Consider the intellectual resources students bring to the classroom
- Role of teacher is to organize the learning environment, develop a sensitivity to moments when novices are ready to take more responsibility or when students dissent opens up new solutions


Learning Sciences and metaphors for learning
Acquisition (cognitive)
Participation (sociocultural)
Constructivism
Constructionism
Vygotsky's SC theory
Situated learning
Expansive learning
Learning pathways
Critical pedagogy
Inquiry learning
Learning Sciences and designs for learning

When an activity is continued into the undergoing of consequences, when the change made by action is reflected back into a change made in us, the mere flux is loaded with significance. We learn something.

- ***John Dewey (1916)***

What is experience?

- Experience as acting upon something, and undergoing the consequences
- Activity ⥋ Experience
- Meaningful only when action is connected to the consequences and we can then adapt to what is to happen
- Learning from experience = Back and forth connection between what we do and what we undergo in consequence <-> Connect to Piaget

1. Experience is not primarily cognitive, it is active-passive
2. Value of an experience lies in the perception of relationships

Separation between mind and body

- Mind as separated from physical organs of activity
- So the connection between activity and undergoing its consequences is broken <-> Emphasis on practices in sociocultural theories
    a. Bodily activity becomes harmful - problem of discipline
    b. Senses and muscles are not “organic” participants in the acts of learning, but as “inlets and outlets” of the mind
        - This denies that the senses and the body are used in doing something purposeful
        - Higher mathematics and science
    c. Separation of perception from judgements
        - Ideas/perception before judgement vs judgement employed in perception

The matter of education

- “All authorities agree that that discernment of relationships is the genuinely intellectual matter; hence, the educative matter. The failure arises in supposing that relationships can become perceptible without experience—without that conjoint trying and undergoing of which we have spoken.”

Reflection in experience: Thought

- Identifying the relationship between what we try to do and what happens in consequence
- Seeing the connection and then identifying how and why they are connected
  - What ties cause/activity and effect/consequence together?
  - What does the result or effect depend on?
  - An explanation of the relationship between cause and effect
- Explicates the “intelligent element” in experience
- It allows us to predict or control the consequences - taking responsibility for future consequences
- Reflection implies concern for the issue
- Begins in partiality but must end up being impartial - what lies beyond our direct interests
- Thinking happens in a state of uncertainty - something unfulfilled- process of inquiry, investigating
  - Acquiring knowledge is secondary to the act of thinking
- All thinking is research - even if everyone else in the world is sure of what you are looking for

Reflection in experience: Thought (cont.)

- Think involves risk taking - hypothetical conclusions - using doubt to systematically advance discovery through inquiry <-> Piaget
    a. Forming conjectures, guide action in tentative explorations, confirm, refute or modify the guiding conjecture
- Steps in inquiry
    a. Perplexity, confusion, doubt
    b. A conjecture
    c. Survey to define and clarify the problem
    d. A tentative hypothesis
    e. Testing the hypothesis through a plan of action to do something to bring about the anticipated result
- Steps c and d are what make thinking systematic as opposed to trial and error

Think - Pair- Share: Experience and thought