

# ***Adult Learning and the Evolution of Learning Theories***

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***Defining your Educational Philosophy***

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A grayscale photograph of a woman with shoulder-length hair and glasses, smiling and holding a dark apple. The background is a dark gray with faint, white mathematical symbols (numbers 3, 4, 5, 6 and multiplication signs) scattered across it. The text is overlaid on the right side of the image.

*All educators  
& instructional  
designers have an  
educational  
philosophy*

# ***Educational Philosophy***

- *Beliefs about how and why people learn; and*
- *What you can/should do to facilitate learning.*

*Drives how you design and deliver training and educational programs*



# 2c's Educational Philosophy



- I believe that children, adolescent, and adults learn by:
- [Real-life] experiences and interactions with the environment and others;
  - Using emotions to selectively attend to stimuli perceived through their senses;
  - Using imagination to visualize the consequences on their actions; and
  - Strengthening synaptic connections and stimulating neuro-mechanisms to encode, consolidate, and retrieve information.

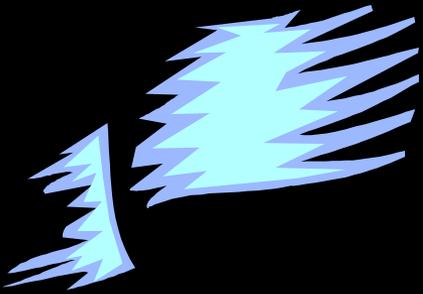
To facilitate learning, I believe educators and designers should:

- Present students with authentic problems or challenges;
- Facilitate learning of facts, concepts, procedure, and principles within context of solving problems;
- Actively engage students by stimulating their prior knowledge, curiosity, and senses;
- Present students with explicit, measurable and congruent expectations and assessments; and
- Evoke emotions and spark imagination through story, play and game.



**Act I:**  
**What's your Educational Philosophy?**

*To ground educational  
philosophy in research  
and theory*



# Outcomes

1. Align theory, research and practice
2. Explain and predict results
3. Base key decisions on research & theory
4. Trace and defend designs
5. Continuously improve products and processes





## Objectives

1. Distinguish grounded vs. craft-based design
2. Characterize evolution of learning theories
3. Discuss key principles and practices



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# Information vs. Training



## Information

Expository text and other (e.g., audio, video, graphic) media designed to transmit a message from sender to receiver

## Training

Series of events & activities designed intentionally to facilitate learning



**Craft-Based (SME)  
vs Grounded  
Design**



## **Craft-Based Design (SME approach)**

Series of events & activities based on past practices, opinions, fads, politics, etc.

## **Grounded Design Instruction**

Series of events & activities based on practical experience, research & theory

# Grounded Design

*“The systematic implementation of processes and procedures that are rooted in established theory and research in human learning.”*

(Hannafin, Hannafin, Land, & Oliver, 1997, p.102)

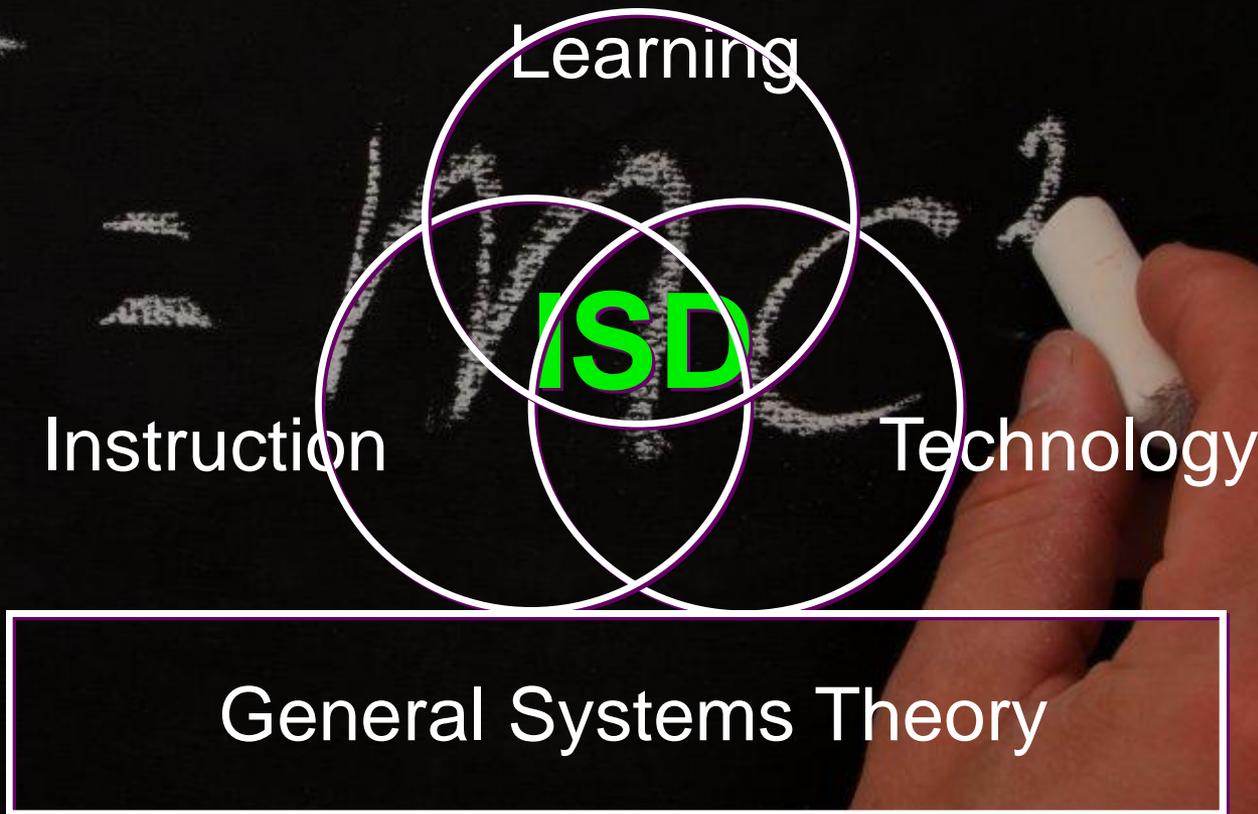
# Grounded Design Conditions

- Rooted in defensible theoretical framework
- Consistent with research findings
- Generalizable beyond unique conditions
- Validated with successive implementations
- Design based on desired outcomes

# Grounded Design Significance

- Aligns research, theory, and practice
- Explains and predicts results
- Allows systematic study, continuous improvement, and effective use across context
- Provides pedagogical foundations for interactions and technology

# Grounded Design Foundations



How grounded is  
your educational  
philosophy?





## Objectives

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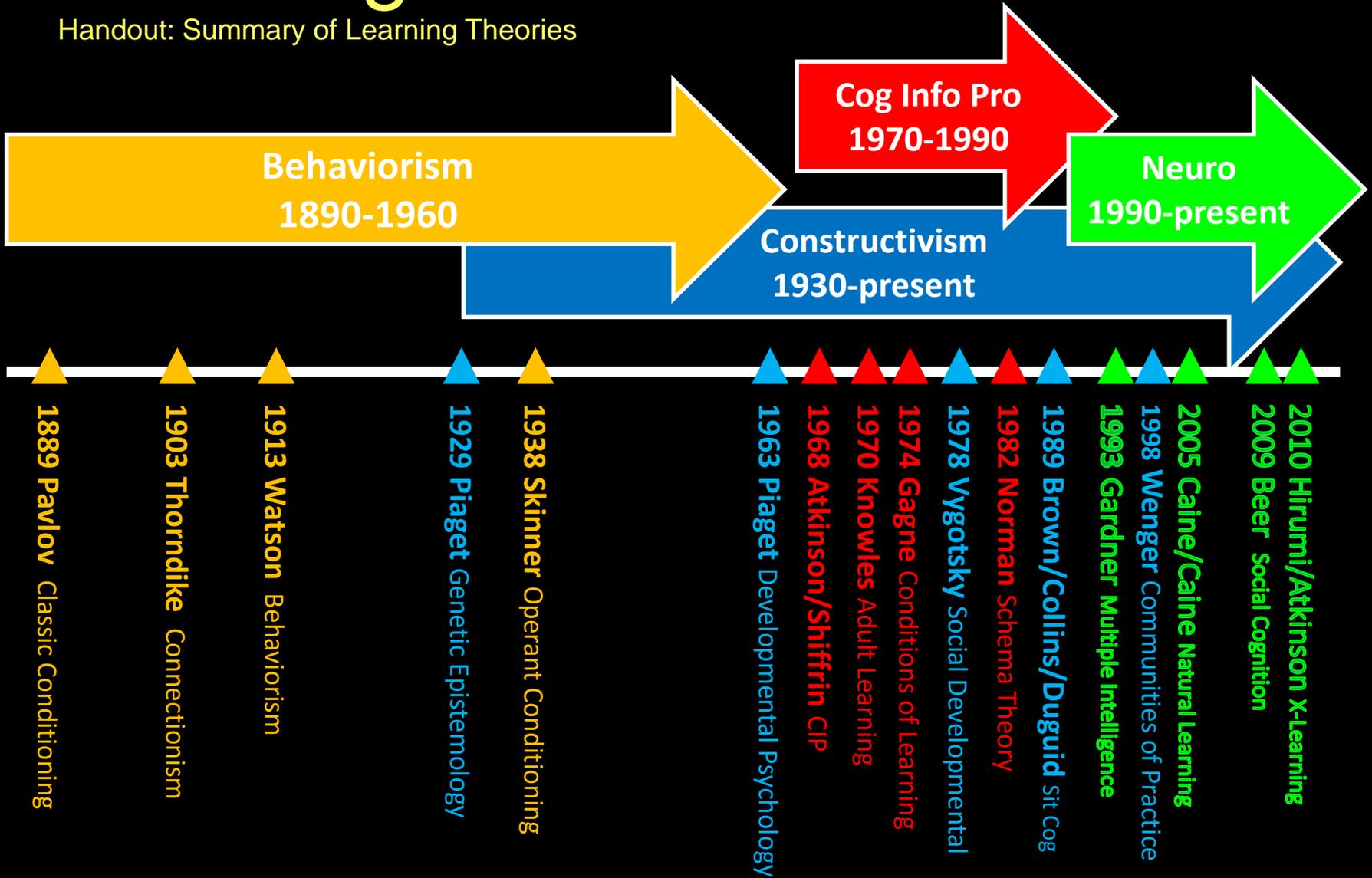
# Epistemological Beliefs

Epistemology: \i-ˌpis-tə-ˈmä-lə-jē\ n. The study of knowledge.  
What is reality? How is knowledge derived?

	Positivist	Pragmatist	Interpretist
Reality	Objective based on natural laws & physical properties	Interpreted negotiated within a social context	Constructed depends on individual understanding
Research	Experimental Quantitative	Design	Naturalistic. Qualitative
Approach	Teacher-Directed	Grounded	Learner-Centered

# Learning Theories

Handout: Summary of Learning Theories





## Objectives

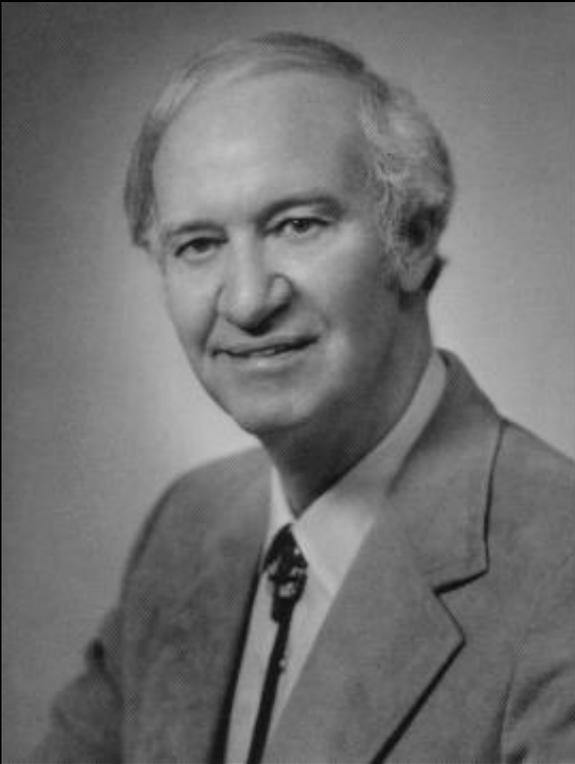
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# Learning & ID Principles

Handout: Learning and Instructional Design Principles

- Universal Principles of Experiential Learning ..... 3
- Adult Learning Principles..... 4
- Learner-Centered Psychological Principles ..... 5
- Cognitive Constructivist Principles ..... 7
- Social Constructivist Principles ..... 8
- Sociocultural Theory and Principles for CSCL..... 9
- Brain-Based (Natural) Learning Principles ..... 11
- Brain Rules..... 12
- First Principles of Instruction ..... 13

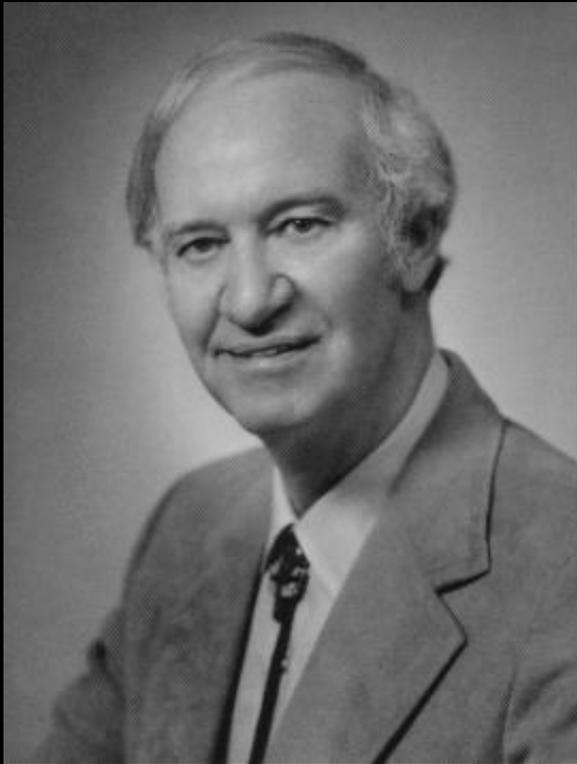
# Principles of Adult Learning



Malcolm Knowles

1. **Adults tend to be self-directed.** Adults want to participate in the planning and evaluation of their learning.
2. **Adults have rich reservoir of experience.** Adults prefer to build on prior learning and experience.
3. **Adults need to learn experientially.** Adults learn by doing; experiences form bases for knowledge construction.

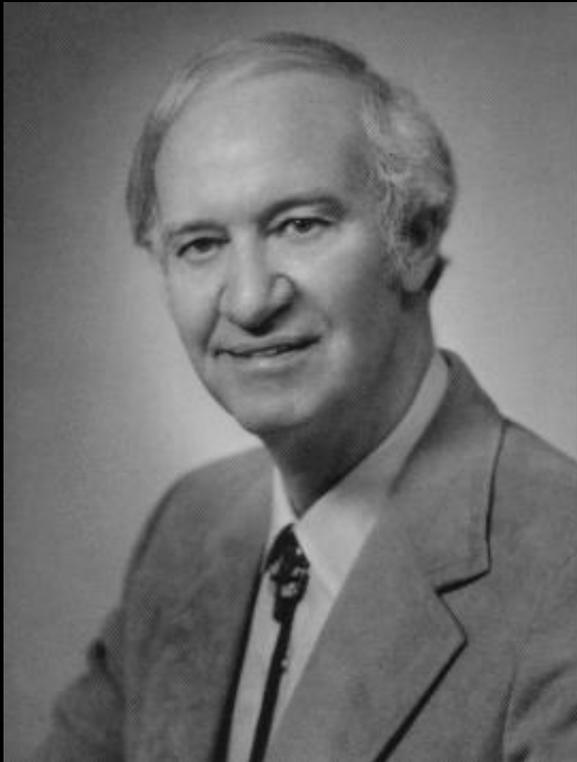
# Principles of Adult Learning



Malcolm Knowles

4. **Adults have problem-solving orientation.** Adults are problem-centered rather than content-oriented
5. **Adults' motivation affected by need to know.** Adults most interested if learning has immediate relevance to job or personal life
6. **Adults motivated by internal/intrinsic factors.** Grades and other extrinsic rewards not as effective with adults.

# 7 steps to adult learning



Malcolm Knowles

1. Set cooperative learning climate,
2. Create mechanisms for mutual planning,
3. Diagnosis learner needs and interests,
4. Formulate objectives based on diagnoses,
5. Design activities for achieving objectives,
6. Execute design, selecting methods, materials & resources, and
7. Evaluate quality of experience & rediagnose need for further learning.



**Act II:**  
**Discuss Adult Learning**

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# Experiential Learning

- **Continuity:** People learn from their experiences
- **Interaction:** Experiences derived from interactions with environment and others

(Dewey, 1938)



# Experiential Learning

- Interesting and authentic goals and challenges
- Skill development and learning of facts, concepts, procedures, rules, problem solving, etc. occur in context



# Experiential Learning

Table 4. Published Experiential Instructional Strategies

<p>Pfeiffer &amp; Jones (1975)</p> <ol style="list-style-type: none"><li>1. Experience</li><li>2. Publish</li><li>3. Process</li><li>4. Internalize</li><li>5. Generalize</li><li>6. Apply</li></ol>	<p>Kolb (1984)</p> <ol style="list-style-type: none"><li>1. Concrete Experience</li><li>2. Reflective Experience</li><li>3. Abstract Experience</li><li>4. Active Experience</li></ol>	<p>Barrows (1985)</p> <ol style="list-style-type: none"><li>1. Start New Class</li><li>2. Start a New Problem</li><li>3. Problem Follow-Up</li><li>4. Presentation(s)</li><li>5. After Conclusion of Problem</li></ol>
<p>Shank, Berman &amp; Macpherson (1999)</p> <ol style="list-style-type: none"><li>1. Define Goals</li><li>2. Set Mission</li><li>3. Present Cover Story</li><li>4. Establish Roles</li><li>5. Operate Scenarios</li><li>6. Provide Resources</li><li>7. Provide Feedback</li></ol>	<p>BSCS (2005)</p> <ol style="list-style-type: none"><li>1. Engage</li><li>2. Explore</li><li>3. Explain</li><li>4. Elaborate</li><li>5. Evaluate</li></ol>	<p>Clark (2004)</p> <ol style="list-style-type: none"><li>1. Goals</li><li>2. Reasons and Activation</li><li>3. Demonstration</li><li>4. Application</li><li>5. Integration</li><li>6. Assessment</li></ol>

# Experiential Learning

**Principle 1 - Framing the Experience** by communicating objectives, assessment criteria, expected behaviors, and social structure (with peers, instructors and the environment beyond the class).

**Principle 2 - Activating Experience** by (a) presenting authentic challenge/problem to facilitate transfer; (b) making decisions with authentic outcomes; (c) orienting learners to perceive relevance of activities in relation to larger problem; and (d) presenting optimal difficulty.

**Principle 3 - Reflecting on Experience** to learn from it. Learners should answer, “What happened?” “Why did it happen?” “What did I learn?” and “How would I apply this knowledge to future experiences?”





**Act III:**  
**Discuss Experiential Learning**

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# Brain Rules



John Medina

1. **Survival:** The human brain is designed to solve problems related to surviving in an unstable outdoor environment.
2. **Exercise:** The human brain evolved under conditions of almost constant motion. Exercise boosts brain power.
3. **Sleep:** Sleep enhances attention, executive function, working memory, mood, logical reasoning, and motor dexterity.
4. **Stress:** Your brain is built to deal with stress that lasts about 30 seconds, not long term stress.

# Brain Rules



John Medina

5. **Wiring:** Every brain is wired differently. What YOU do and learn in life physically changes what your brain looks like.
6. **Attention:** We don't pay attention to boring things. What we pay attention to is profoundly influenced by memory.
7. **Memory:** Repeat to remember. Need to consistently re-expose yourself to information to extend memory past 30 sec.
8. **Sensory Integration:** Stimulate more senses. Those in multisensory environments always do better.

# Brain Rules



John Medina

9. **Vision:** Vision trumps all other senses. We see words as tiny pictures, and must identify certain features to read them.
10. **Music:** Study or listen to boost cognition.
11. **Gender:** Male and female brains are different. Women are more likely to get depressed. Men exhibit more antisocial behavior.
12. **Exploration:** We learn, not by passive reaction to the environment but by active testing through observation, hypothesis, experiment, and conclusion.

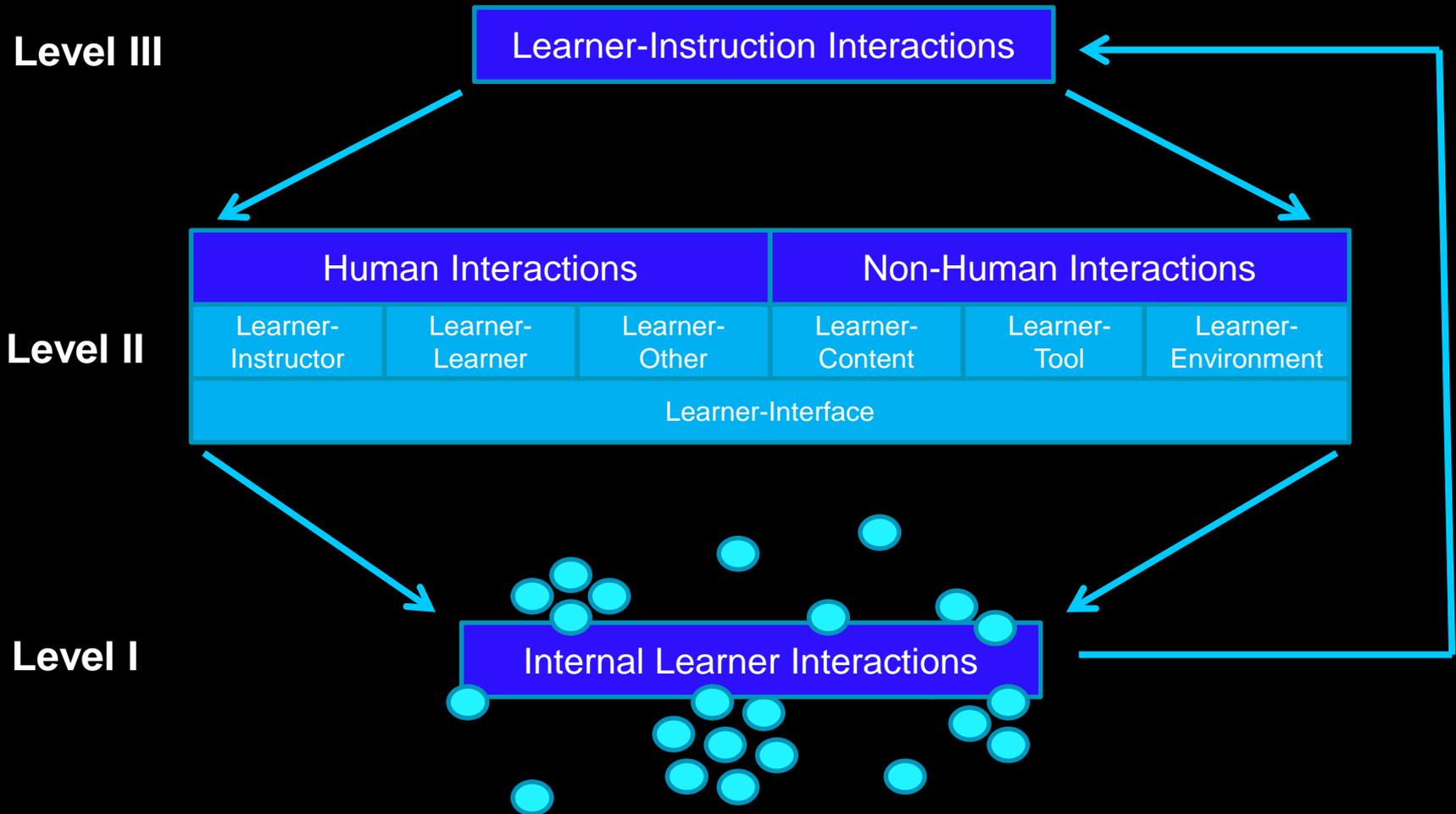


**Act IV:  
Review and revise, considering...**

# Advancing a theory vs. mashing theories



# What's next (Part II)?



(Hirumi, in press)



**Act V: Reflect**