

WORKSHOP ON INTELLIGENT LIFELONG LEARNING COMPANIONS

HUMAN LEARNING & REQUIREMENTS

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Learning, Forgetting, and Something Else

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Learning Methods/Strategies/Styles:

- ✕ Learning/teaching principles (Abell)
- ✕ Basic foundation to application (telling -> practice)
 - + Feedback
- ✕ Novice to expert continuum
 - + Does learning/teaching approach change as expertise increases?
 - + Readiness (zone of proximal development)
- ✕ Adapt based on (preferences, culture, gender)
 - + Is there a best strategy across all people?
- ✕ Best strategies per type of task/learning objective

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Retention (how quickly we forget):

✖ Context dependent

- + Situational variables
- + Previous knowledge
- + Emotions (9/11, Challenger, Kennedy, and less emotional moments)

✖ Practice

- + Distributed practice (spaced)
- + Overlearning
- + Variations (multiple contexts)

✖ Task type (riding a bicycle, calculus)

✖ Time

- + Time since learning
- + Time since practice

✖ Reliability of aid (dependency – Chad's mom)

✖ Modeling retention curves (not too easy)

✖ Assess performance/ability before retraining

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Effectiveness:

Assessment - self & external

Learning = Delta ability (starting point to end point)

Interest/motivation (can it promote interest?)

Persuade – good/bad

Emotional link

Would this system maintain effectiveness over entire career (20+ years)?

Dependency on system – or would system fade out

Thousands of paths possible, which is best? Is there a best?

Can you switch paths midstream? How many of you have changed majors/careers?

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Potential discussion questions

1. How "sturdy" are memories and learned skills?
2. What pedagogical strategies lead to longer retention?
3. What are the ingredients for improving retention and reducing memory decay?
4. What are the impacts of local/episodic pedagogical decisions on longer term learning?
5. What are the traits of the best human lifelong learners? What do good learners do?
6. How do learners behave with respect to broader learning and achievement goals?
7. How do human mentors and counselors guide learners and motivate student to make the best decisions (vs. the easiest ones)?
8. What is the appropriate timing for learning experiences? What are the properties of "cognitive readiness" and "learning readiness" and can they be reliably detected?
9. When is it a "time for telling" vs. a time for playing/practicing?
10. Are there domain-independent learner traits that can be re-used across domains to promote learning? *Do learning styles exist in a meaningful way?*
11. How could we tell if a lifelong learning companion is working? How can it be evaluated in terms of its effectiveness to improve learning?