

Undergraduate Research and Skill Level Acquisition:

Transition from Novice → Expert

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Creative Activity



Fordham University

Brit Lit, Fall 1981

- Emily Bronte, *Wuthering Heights*
- Not a clue
- Every night I would read and read
- Once a week we had reading quizzes
- Flunked them all
- *That* girl





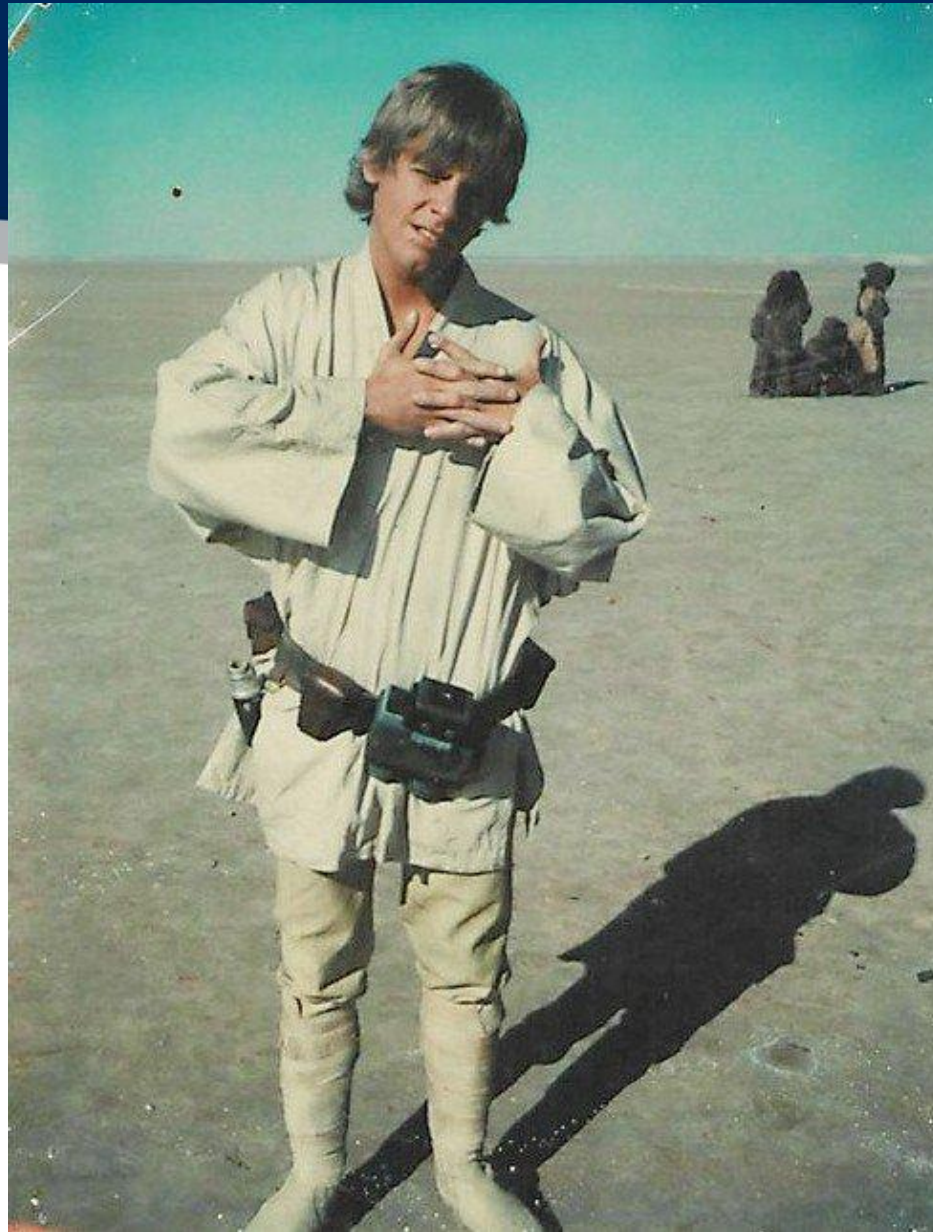
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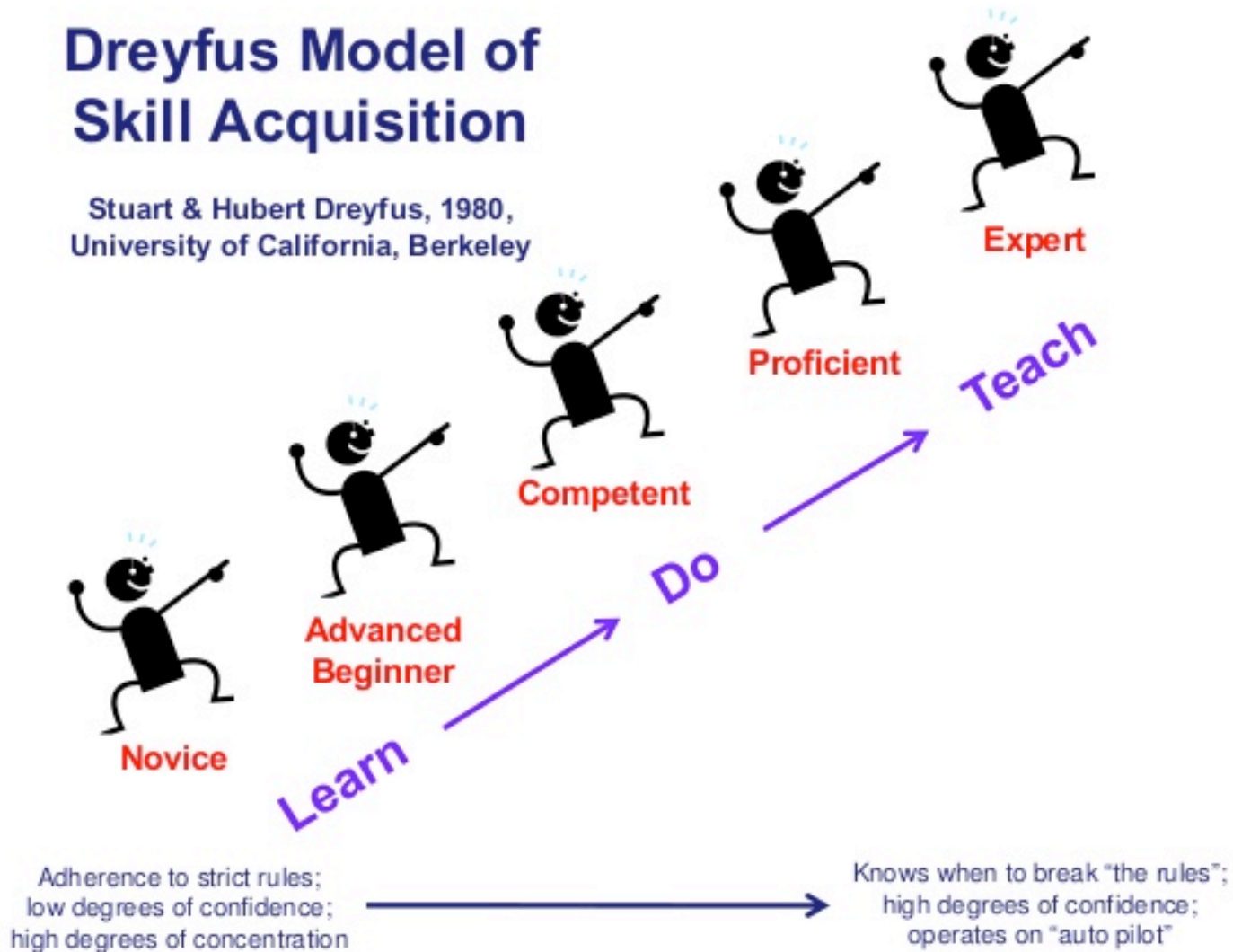


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Dreyfus Model of Skill Acquisition

Stuart & Hubert Dreyfus, 1980,
University of California, Berkeley



Skill Level Acquisition

- Stuart and Hubert Dreyfus' theory of skills acquisition
 - Stuart: Industrial Engineering (UC Berkeley)
 - Hubert: Philosophy (UC Berkeley)
- Originally published in 1980 and then again in 1986
- A developmental model
- “Everyday, concrete experience in problem solving” builds on theory and abstract concepts

Novice to expert

- Novice
- Advanced Beginner
- Competent
- Proficient
- Expert



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The Novice

- Usually has an incomplete or rudimentary understanding of the topic
 - Approaches tasks mechanistically
 - Needs supervision to complete tasks
 - Little situational perception
 - No discretionary judgment
-
- Knowledge might be acquired without reference to context







The Novice





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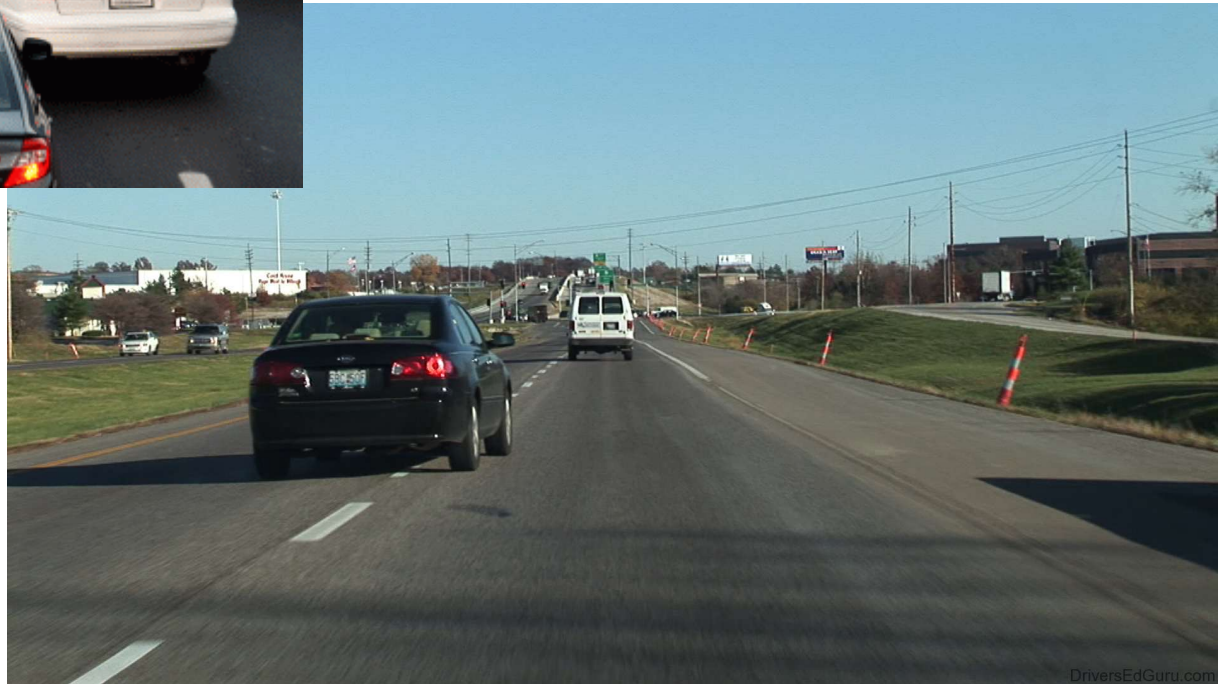




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The Advanced Beginner

- Has a working understanding of the topic
- Tends to see actions as a series of steps
- Can begin to complete simpler tasks without supervision
- Begins to employ situational skills
- Begins to appreciate the acquisition of new knowledge contextually





The Advanced Beginner

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Competent

- Has a good working and background understanding of the topic
- Sees actions partly in context
- Able to complete work independently to an acceptable standard that might lack refinement
- Sees new knowledge in the context of the bigger picture though the bigger picture may still be a bit out of focus



Proficient

- Has a deep understanding of the topic
- Sees actions holistically
- Able to achieve a high standard





Proficiency

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Expert

- Has an authoritative or deep holistic understanding of the topic
- Deals with routine matters intuitively
- Is able to go beyond existing interpretations to the creation of new knowledge(s)
- Has the “vision” thing





Situational Adaptation

- Begins with repetition/mimicry/rote action



Putting together the pieces



Adapting to the situation



Traits and capabilities

Novice	seeks rules and recipes to guide action
Advanced beginner	seeks strategic and contextual knowledge; begins to know when rules can be broken
Competent	is able to monitor own performance and make conscious choices about what to do
Proficient	increased use of intuition and tacit knowledge; 'reads' the learning situation easily, sees its events as connected and explicable
Expert	characterized by fluency and automaticity; fully adapted to, and in control of, the situation

Framework, Berliner (1988); Years experience data from James Leach (1996)

Transition between levels

- Mobility does not equal time/years
- Regression when faced with new situation/specialty
- Transition takes time and experience
 - Experiential learning
 - Reasoned practice
 - Gain the habit and understanding of deliberation
- Move more quickly to next level
 - Apply prior learning
 - See what the core concepts are
 - See how concepts can be applied in new situation

Transition from novice

- What supports development and transition along these levels of capability?



To foster competence and confidence

- Use reflection, questioning, storytelling, feedback, experience and success to foster development
- Support holistic learning
- Focus on concrete critical thinking development questions/discussion
- Clearly defined expectations
- A plan for the learning process

Learning Environment

- Basic principles of teaching/learning
 - Simple to complex
 - Success builds success
 - Allow practice, even failure
 - Allow time for learning and discussing
 - Feedback, Correction, Change direction
 - Take chances



Do one brave thing today... then run like hell!

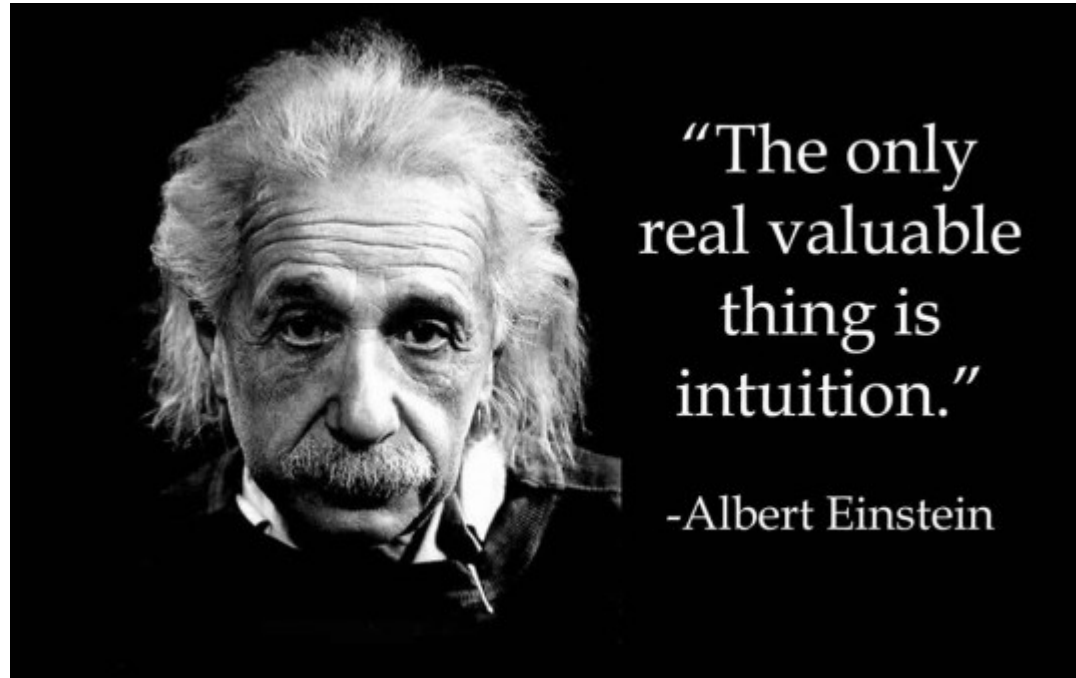


Don't forget to celebrate accomplishments

- Conferences
- Publication
- Competition
- Performance



What is the role of intuition in learning and research?





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Intuition



Reason/Logic



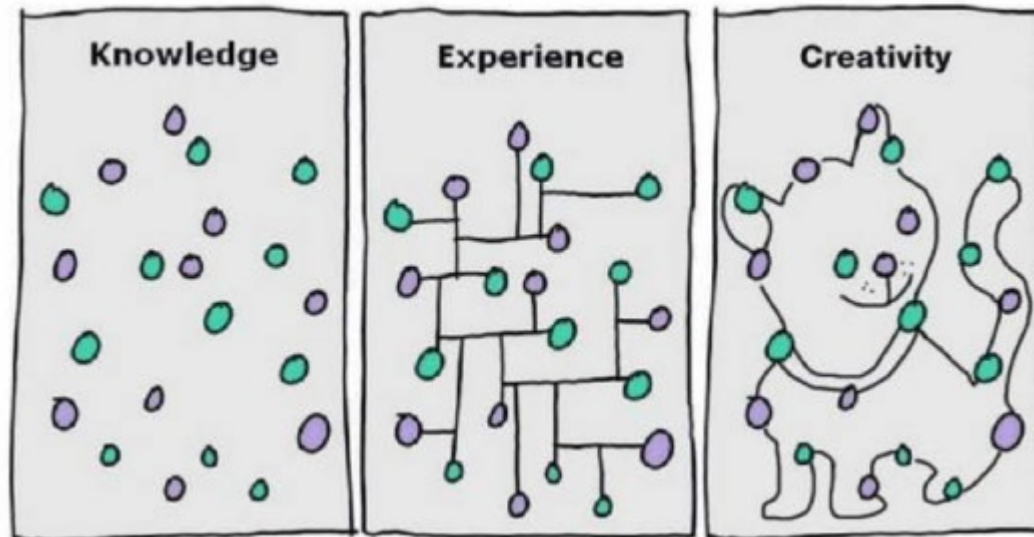
Instinct



Maslow's Hierarchy

OF NEEDS





- *Dreyfus, Stuart E.; Dreyfus, Hubert L. (February 1980). "A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition." Washington, DC: Storming Media.*



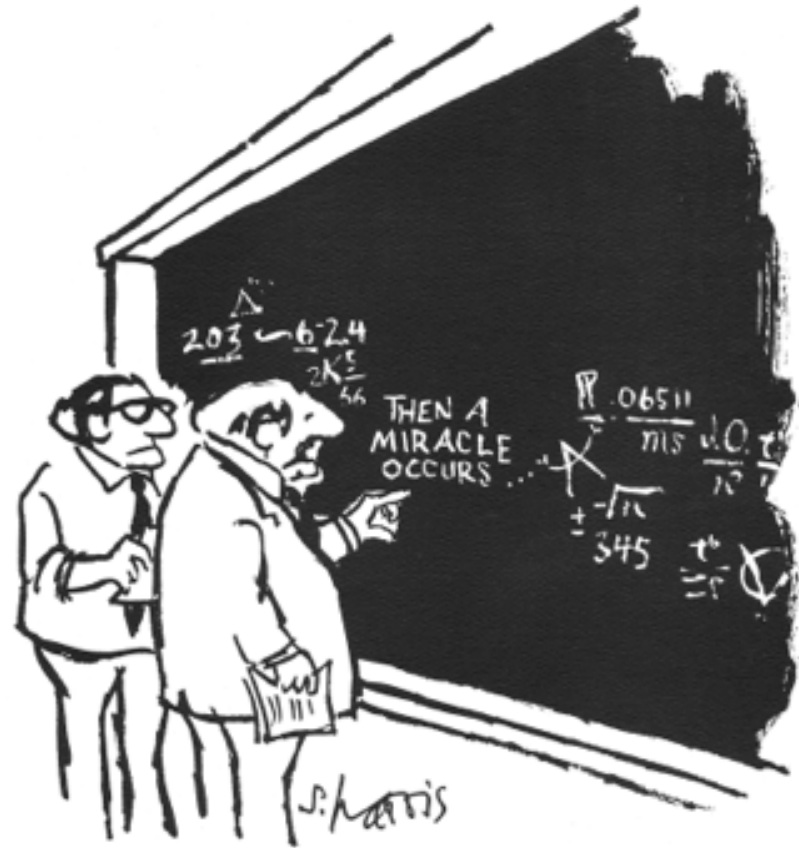
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OURCA Open House
Halloween 1-5pm
Come in costume!



"I THINK YOU SHOULD BE MORE
EXPLICIT HERE IN STEP TWO."

