

# **Beyond Logic: Designing for the Flaws in our Cognitive Architecture**

**Clark Quinn, Ph.D.**



*@quinnovator*

Time flies like an arrow  
Fruit flies like a banana

flies=flies

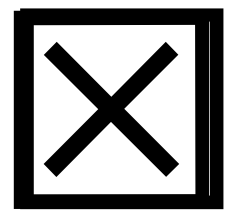
?

**Contextual!**  
**(aka situated/emergent)**

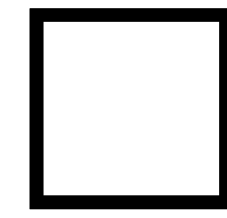
**Given:**  
**set of cards;**  
**letter on one side,**  
**digit on the other;**  
**and a rule that must not be violated**

**Rule: if vowel, then odd.**

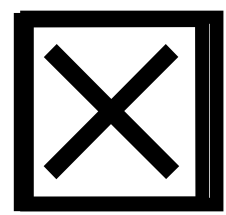
**Which turn over to verify rule not violated?**



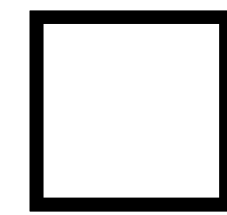
**E**



**K**



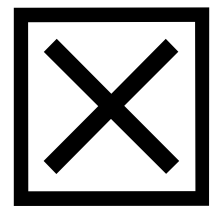
**2**



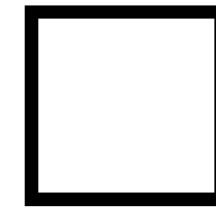
**7**

**Given: set of checks; amount on one side,  
space for signature on the other;  
and a rule that must not be violated**

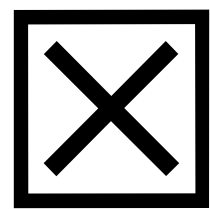
**Rule: if  $> \$25$ , then signature.**  
**Which turn over to verify rule not violated?**



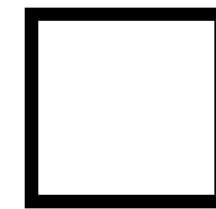
	75
_____	_____



	15
_____	_____



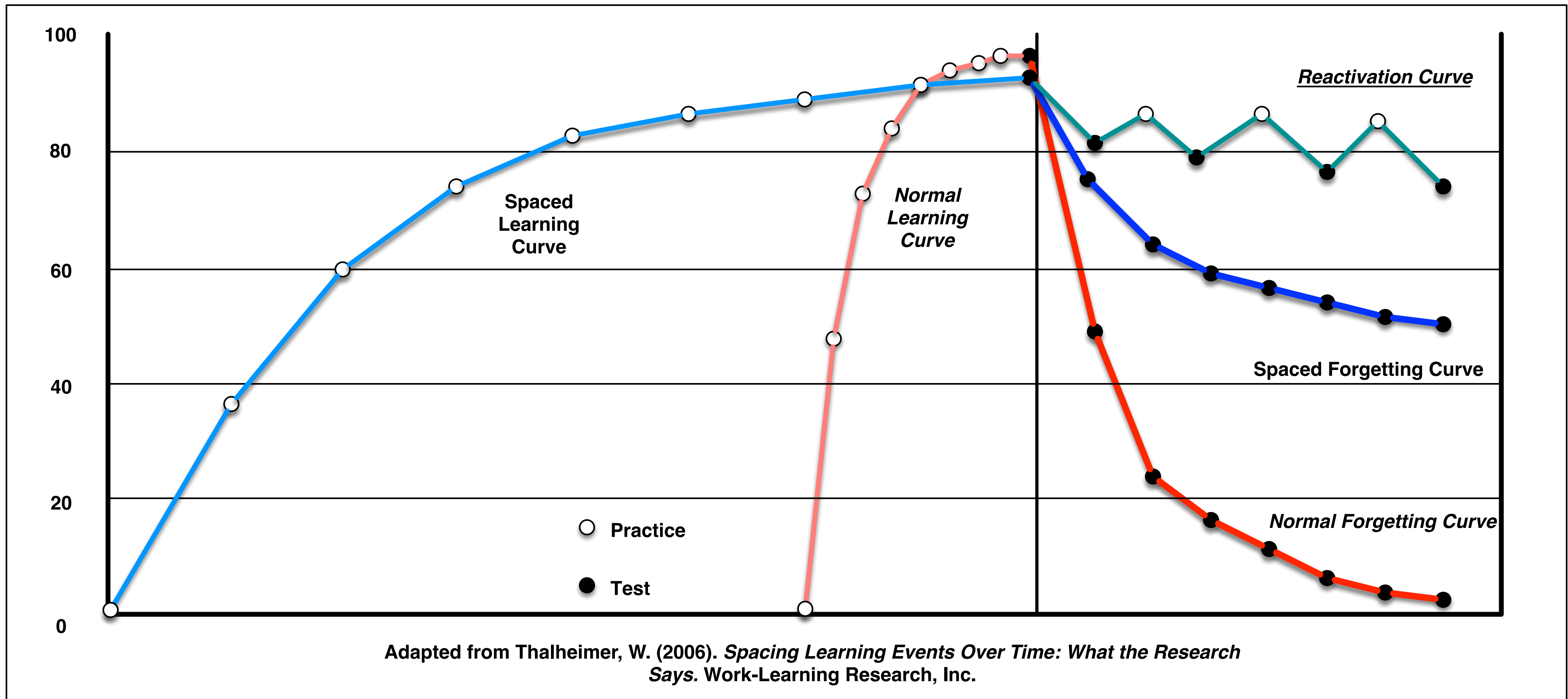
_____
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<i>Clark</i>
_____

**Concrete better**





**plunger** plʌnˈjər The plunger was broken.

(8) Plunger means (a) a pump part (c) a brown car

## Select Treatment

Hello c



HELP



EXIT



POINTS



TIME

09:15:16 am

PAIN LEVEL



ADVERSE EFFECTS

ANXIETY

0%



RESPIRATORY

0%



HYPOTENSION

0%



PATIENT PROFILE

DOCTOR PRESCRIPTION

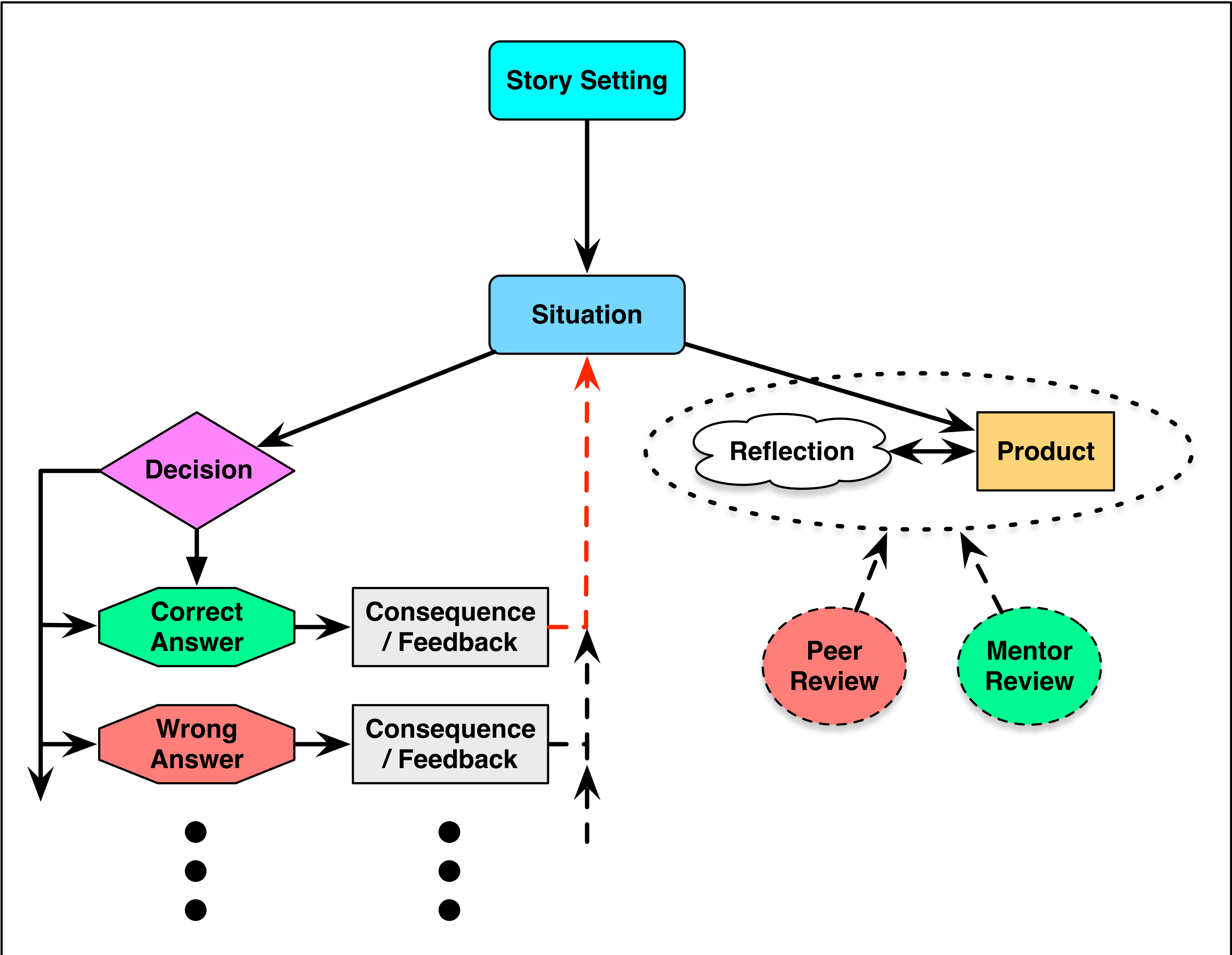
What treatment do you want to give?

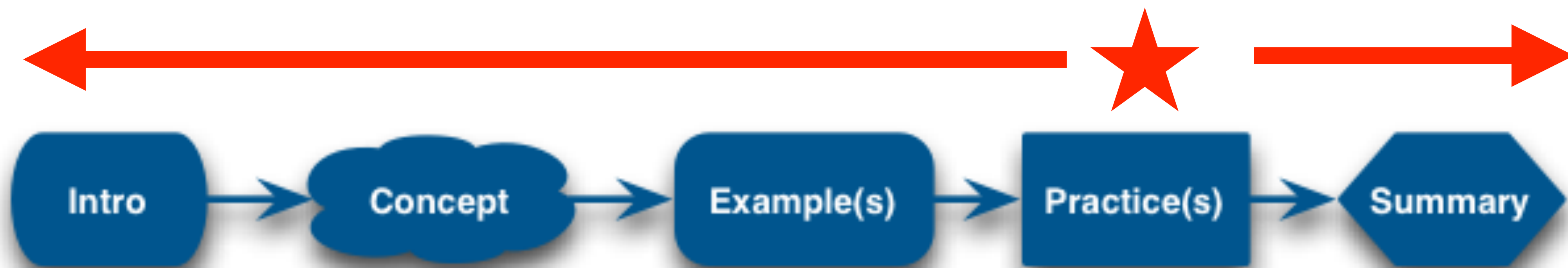
Select an appropriate treatment and click Submit.  
You can read about the medication chosen by clicking on the 'What is this?' button.

- Ibuprofen 400mg
- Percocet 1 tablet
- Morphine Sulphate 5 gms
- Morphine Sulphate 10 gm
- Morphine Sulphate 15 gm
- Alert head nurse Immediately
- Wait and see
- Treat Adverse Effect

What is this?

Submit





$$1288 \div 56 =$$

- A. I can do in my head
- B. I can do with pencil & paper
- C. I can do it with a calculator

**Distributed!**

Well

Poorly

Pattern-matching

Arbitrary

Meaning

Rote

Language

Abstract

Motion

Quantity

Social

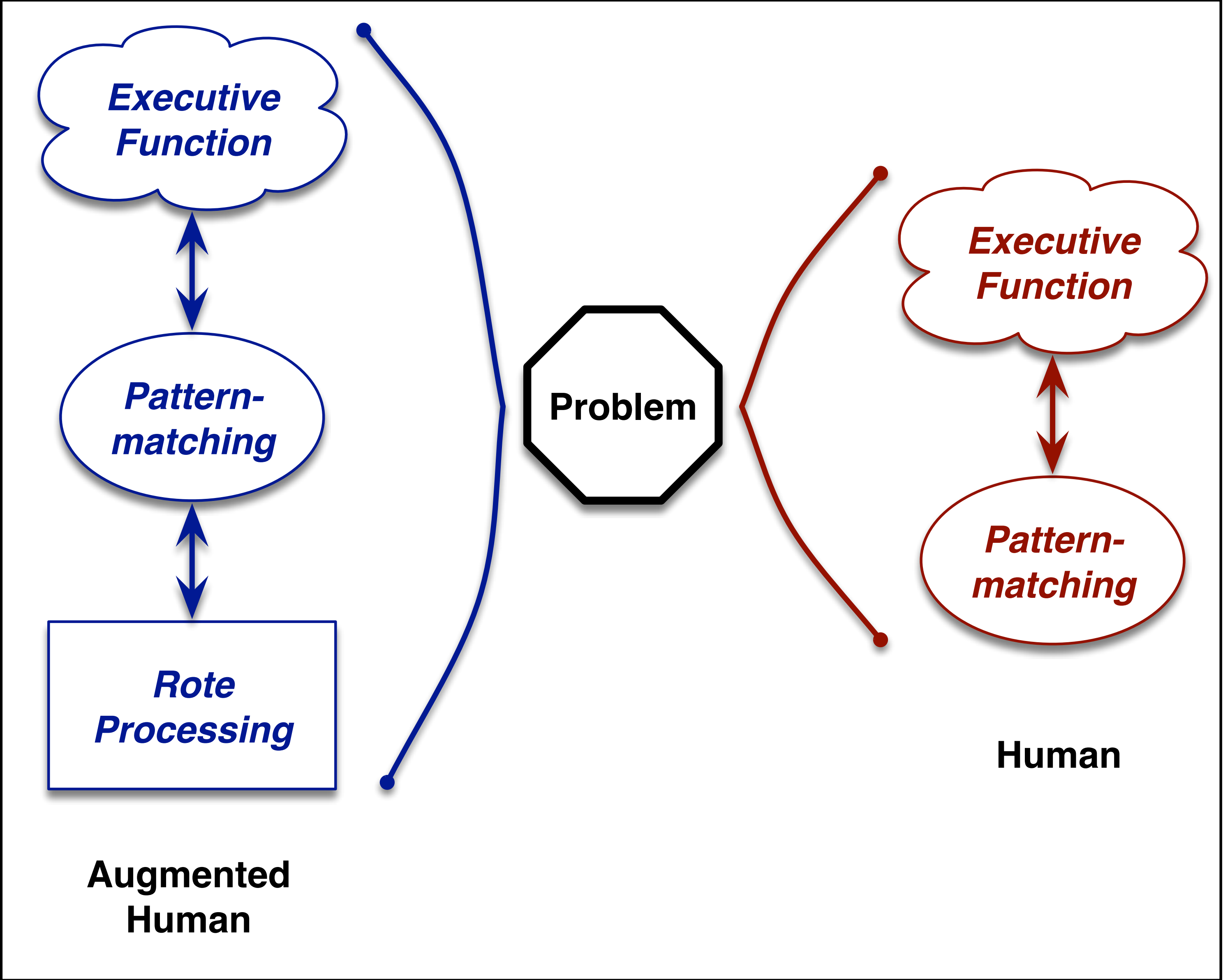
Accuracy

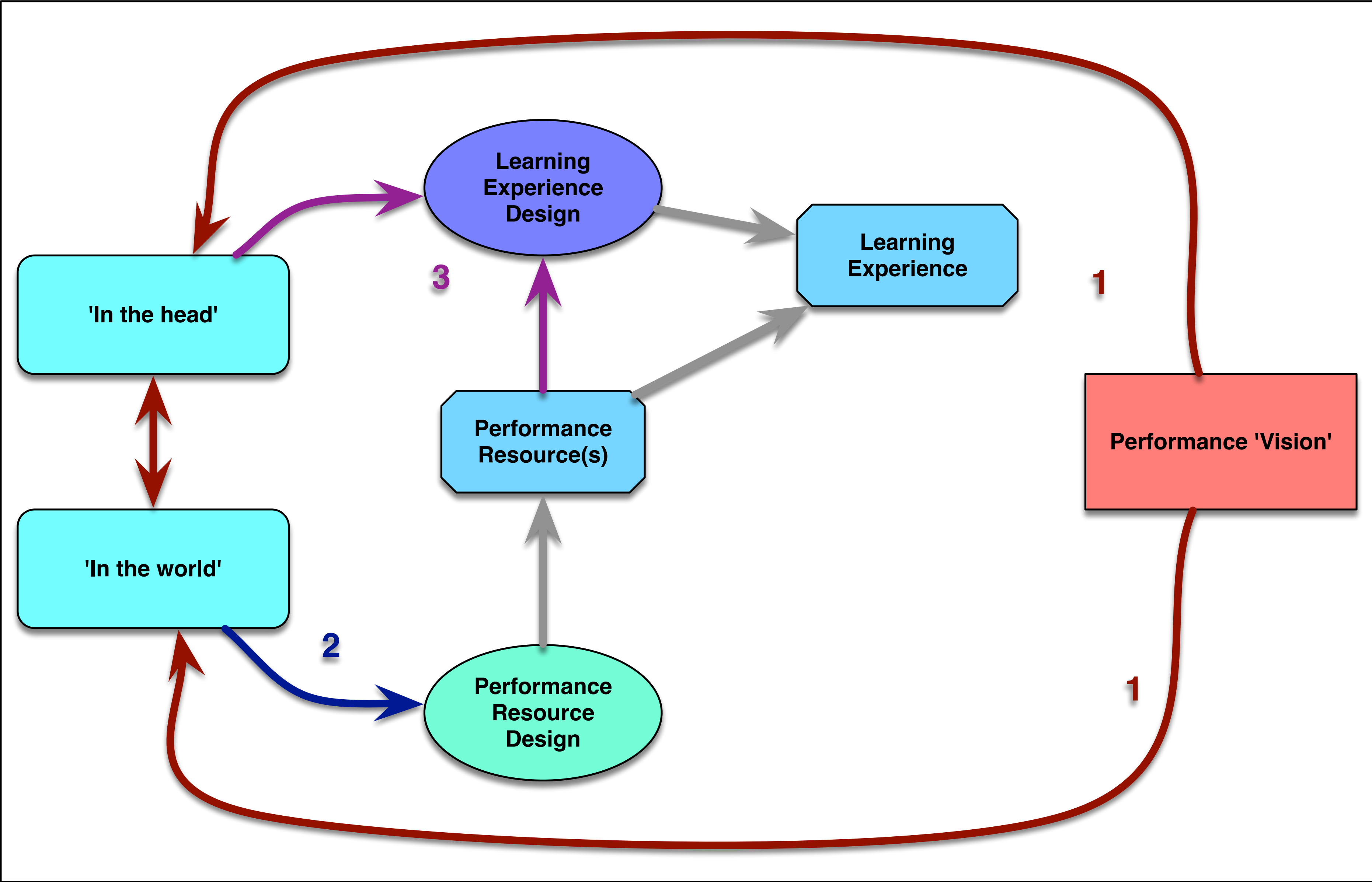
Biologically Primary

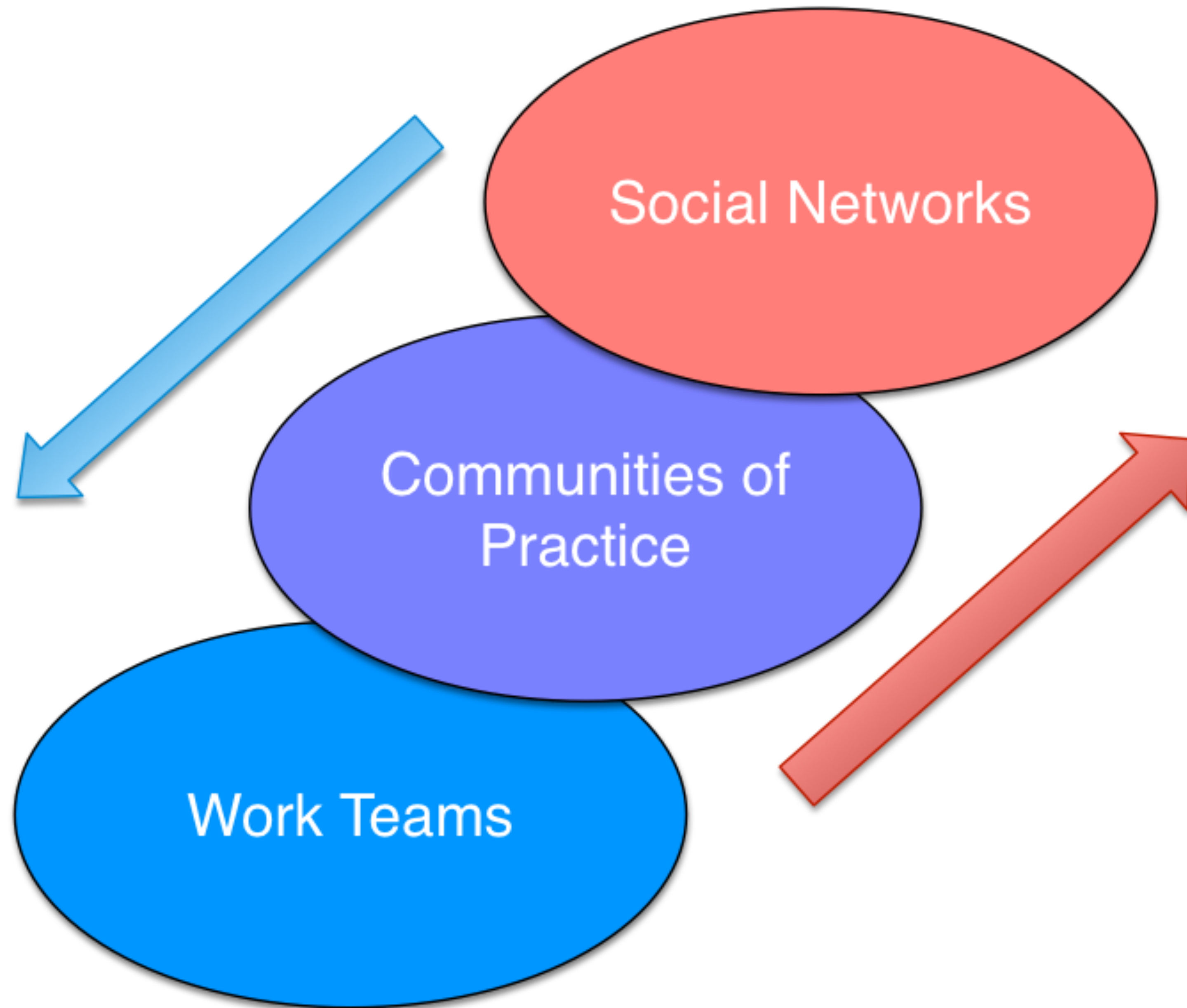
Biologically Secondary

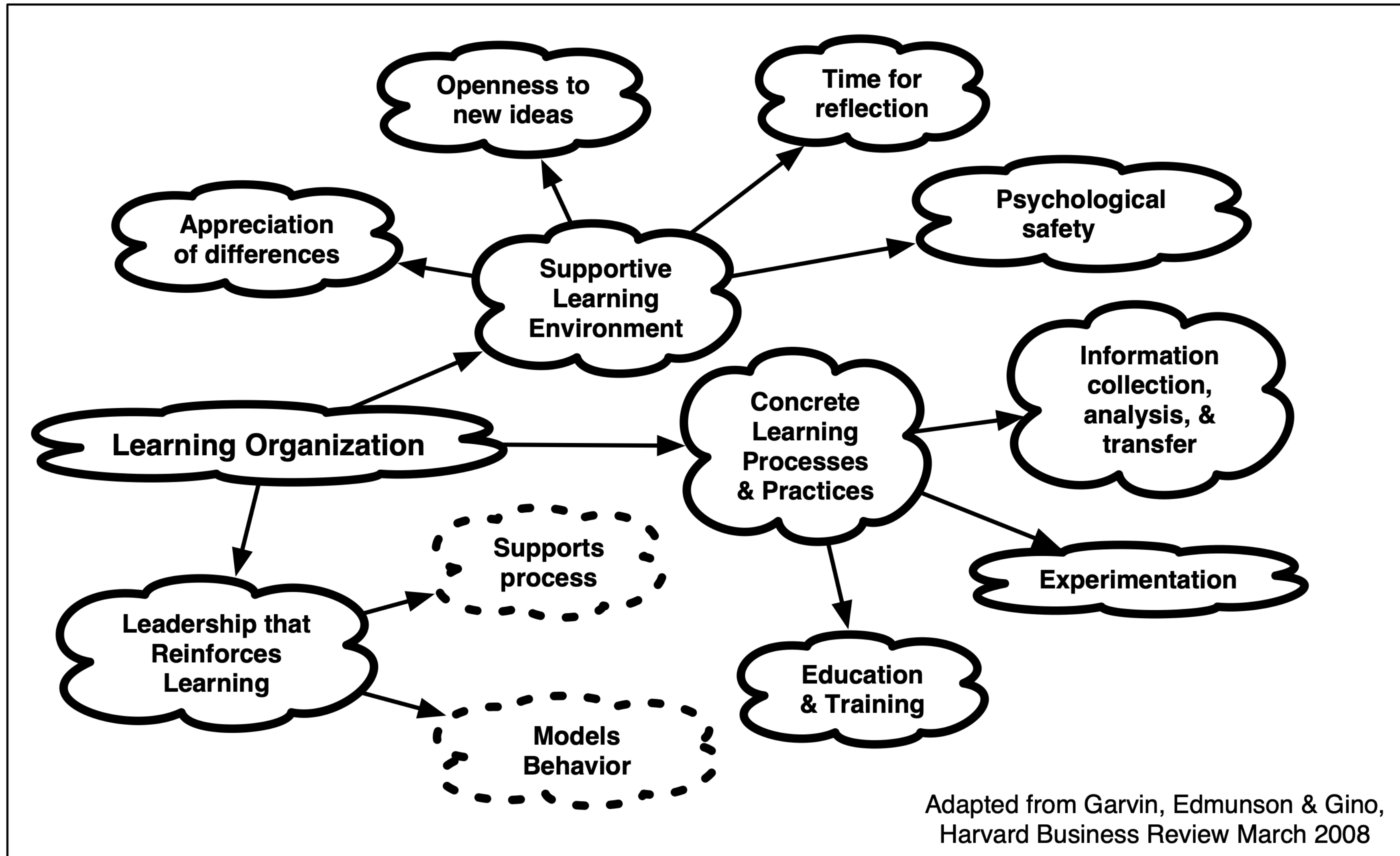


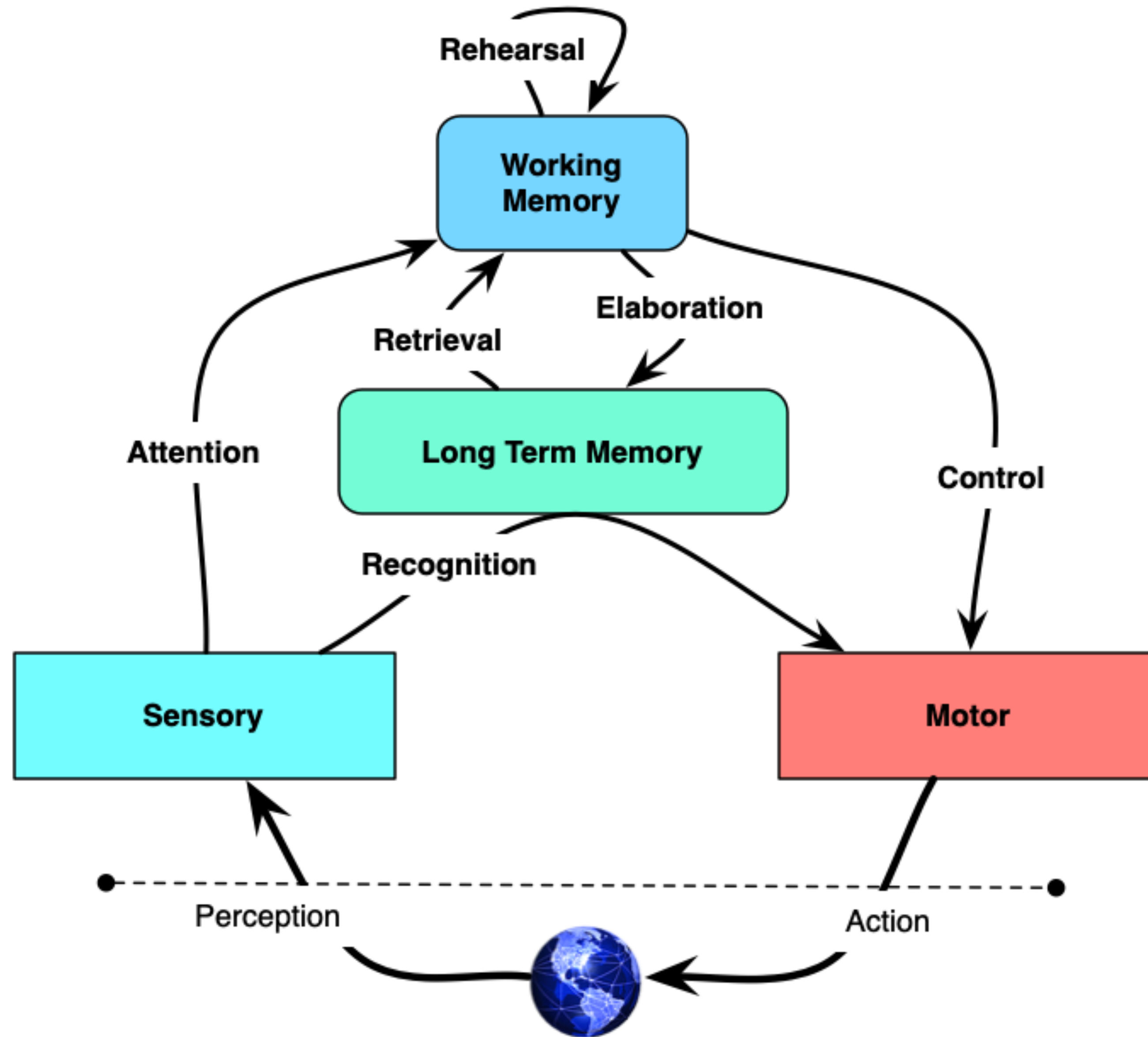
Cognitive Limitation	Support
Sensory Store	Capture
Attention Limits	Notifications
Working Memory Limits	Calculators
Rehearsal Limits	External Representations
Recall Limits	Lookup/Search
Skip/Forget Steps	Checklists
Previous Biases	Lateral Prompts
Premature Evaluation	Data
Intuition/Fatigue	Templates
...	...

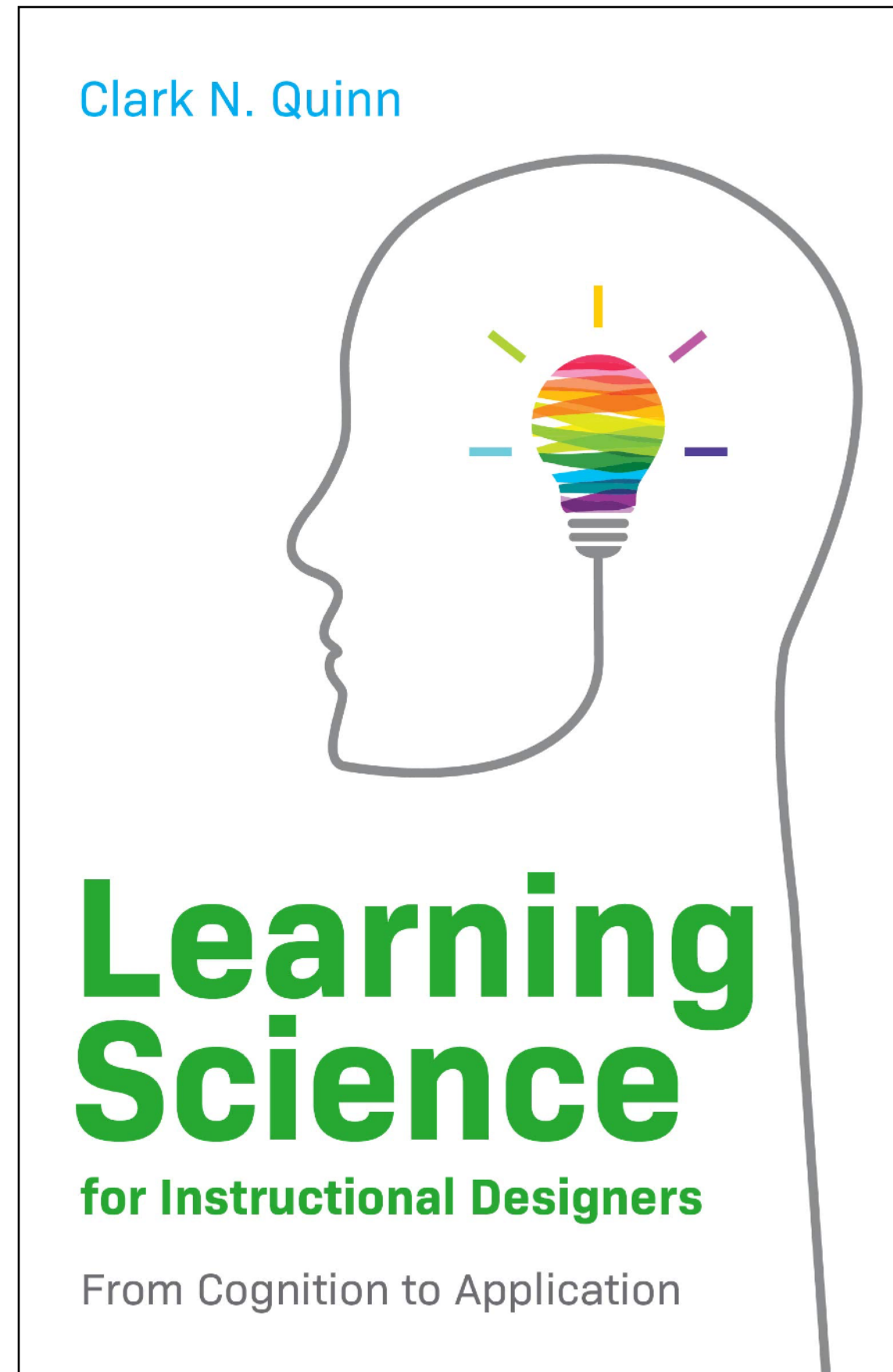












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# Thanks!

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