



UNITED STATES MILITARY ACADEMY  
**WEST POINT®**

# Motivation for Learning from Technology

LESSEP 2019-1

June 7-8, 2019

Florida International University

Miami, FL

Steven J. Condly, PhD

United States Military Academy at West Point

[steven.condly@westpoint.edu](mailto:steven.condly@westpoint.edu)

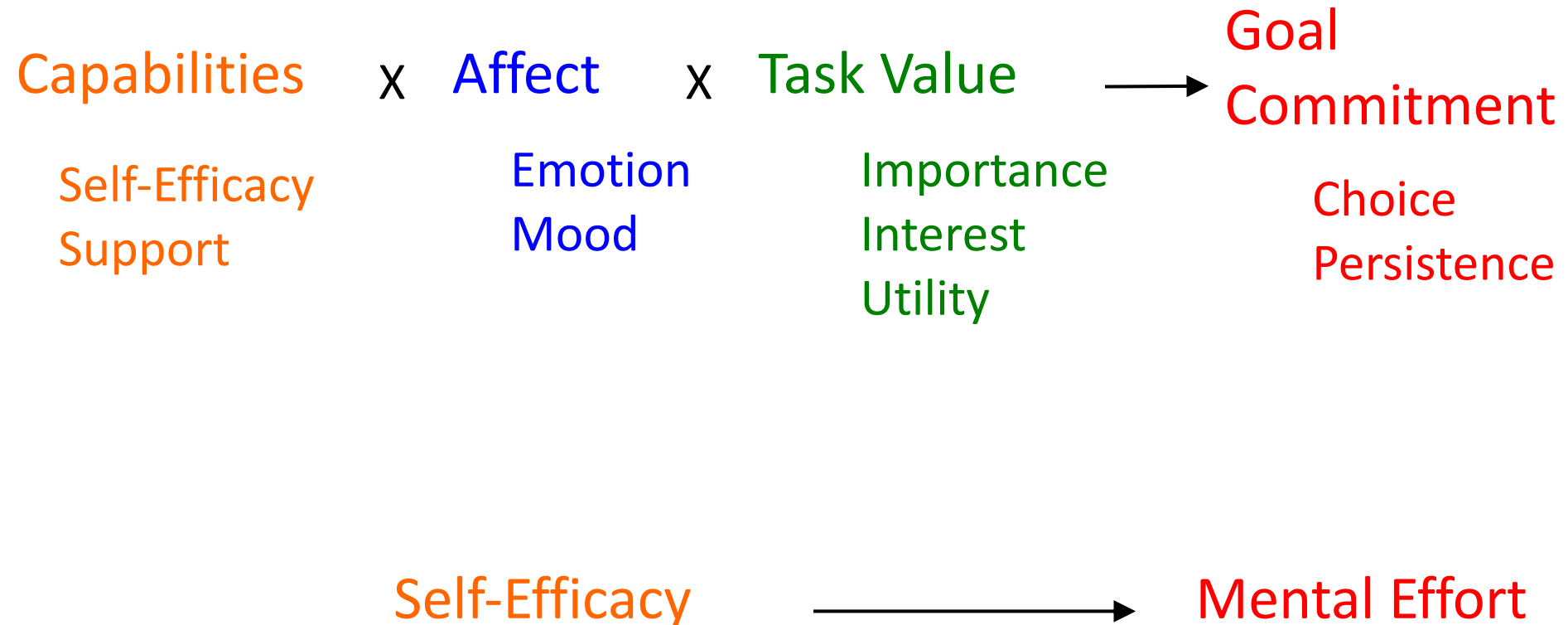


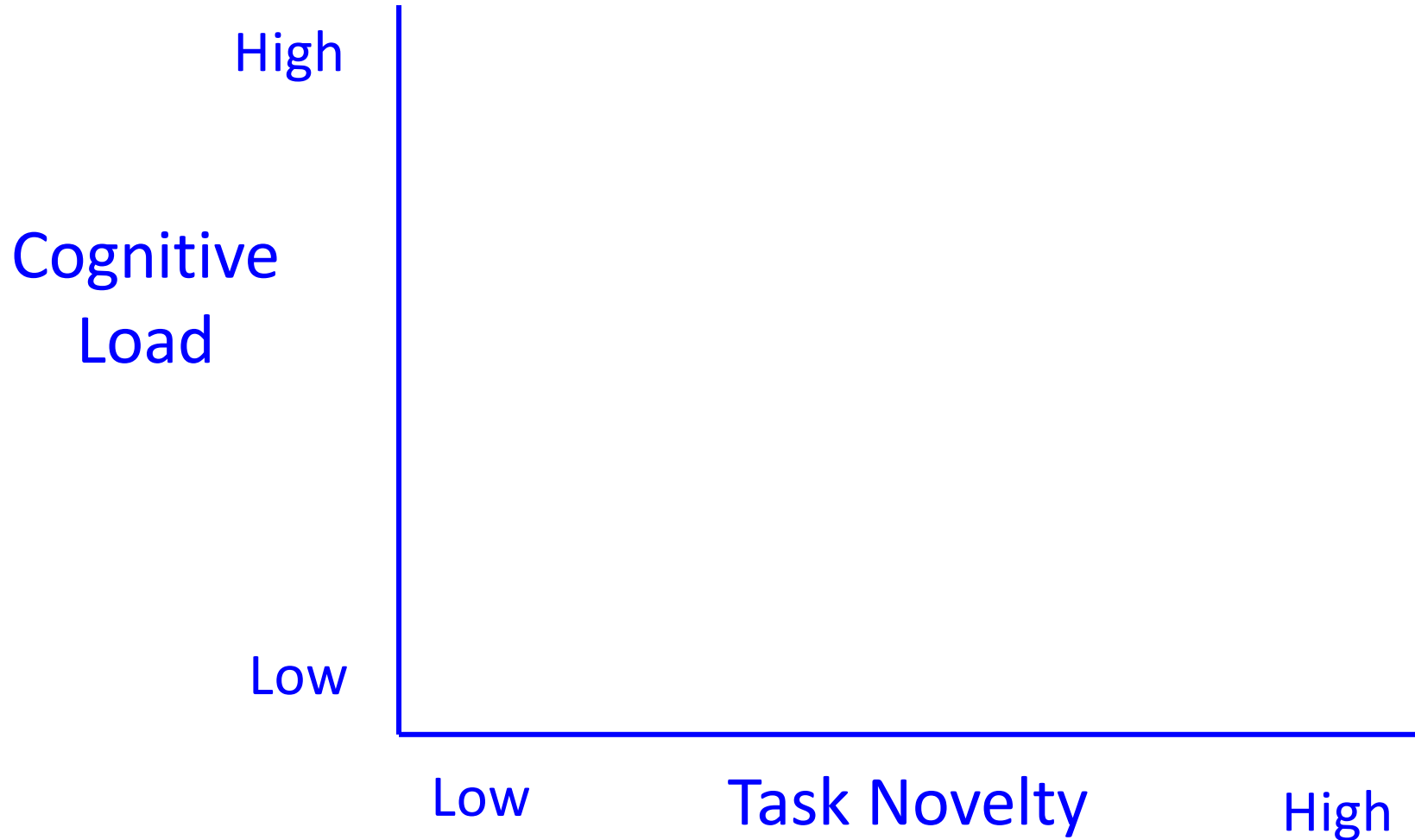
- Definition
  - “the process whereby goal-directed activity is instigated and sustained” (Schunk, Pintrich, & Meece, 2008, p. 4).
- Indicators
  - Choices
  - Persistence
  - Effort Expenditures
  - *Achievement*



# CANE Model of Motivation

(Commitment And Necessary Effort)

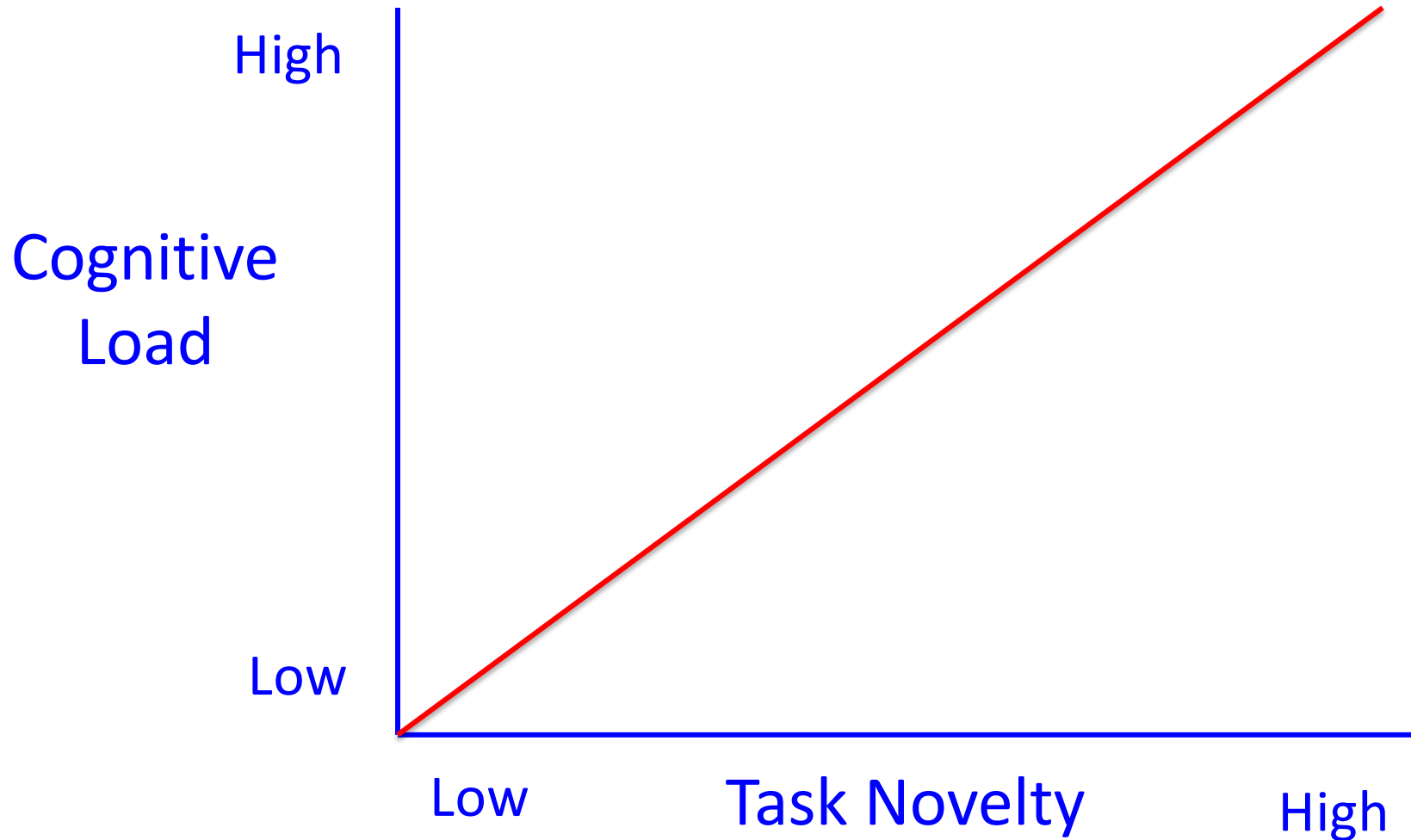






UNITED STATES MILITARY ACADEMY  
WEST POINT®

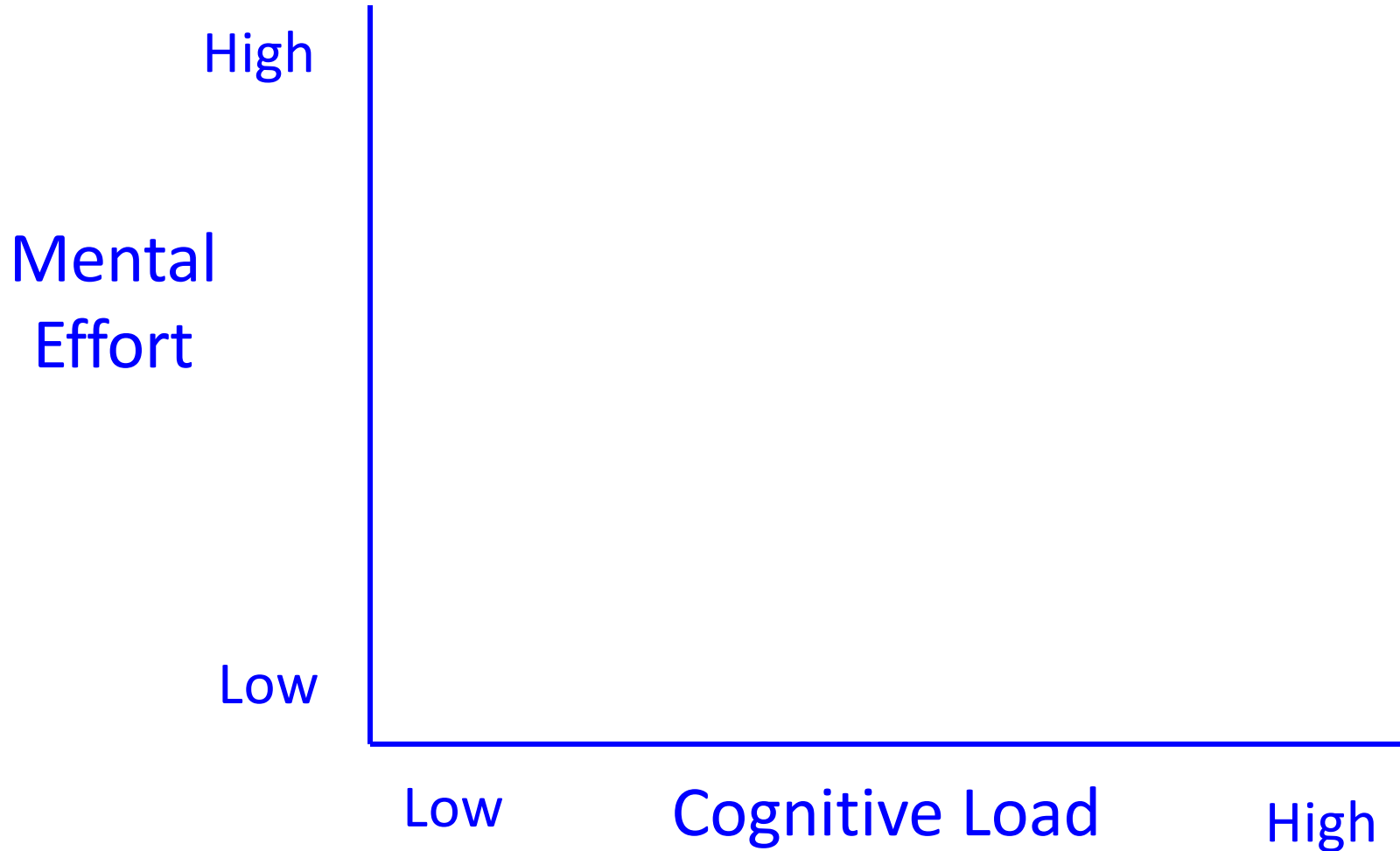
# Task Novelty & Cognitive Load

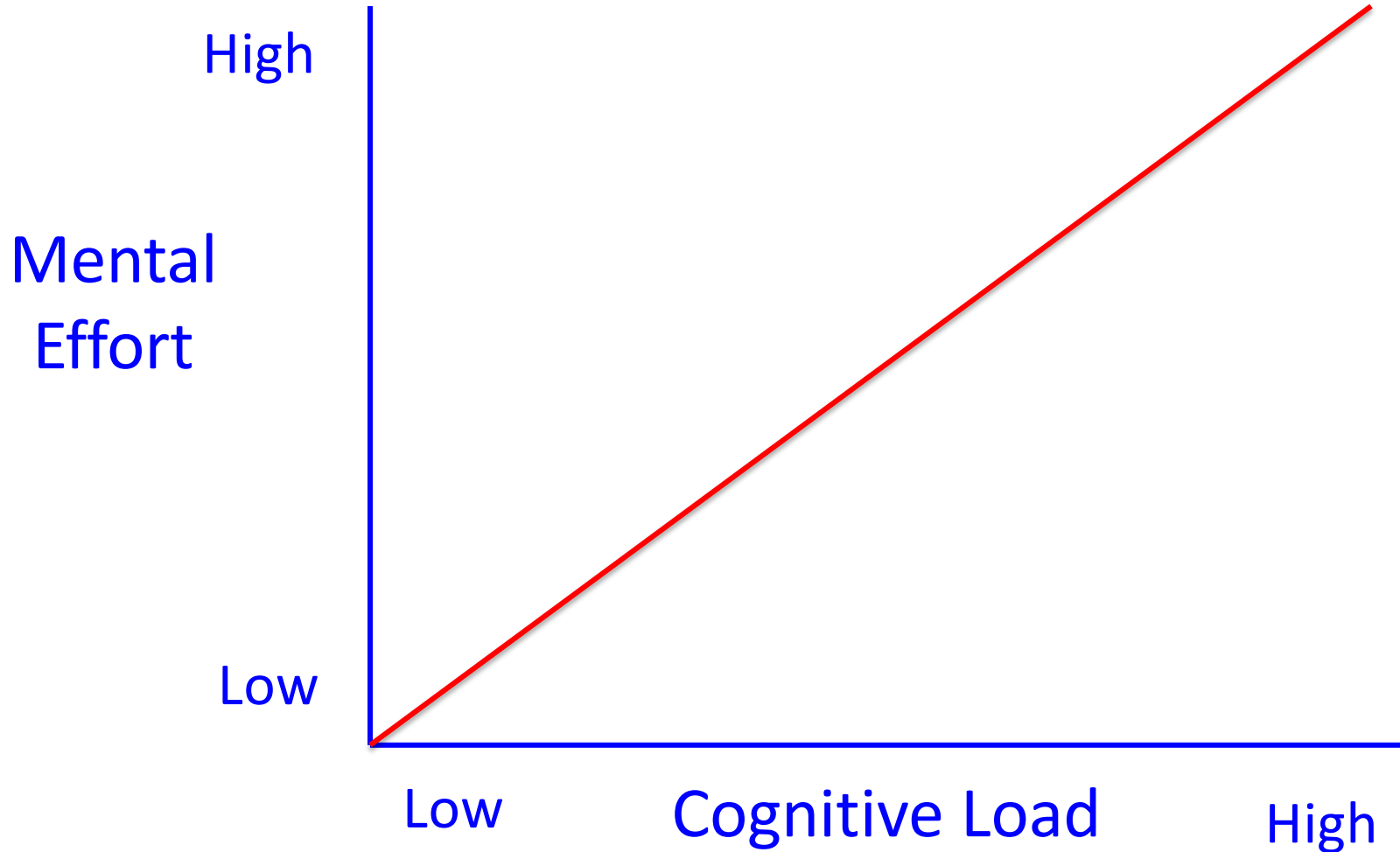


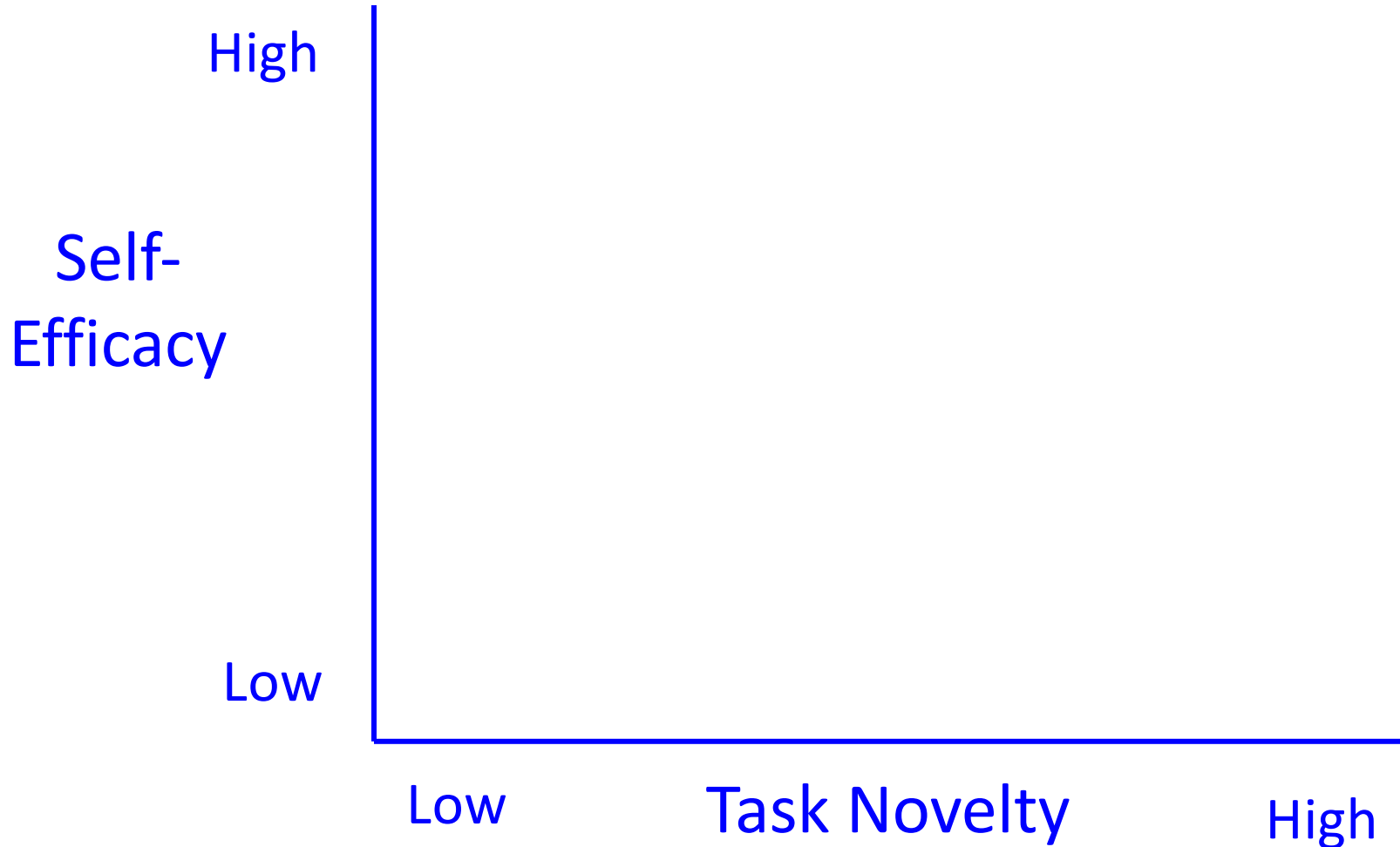


UNITED STATES MILITARY ACADEMY  
**WEST POINT**

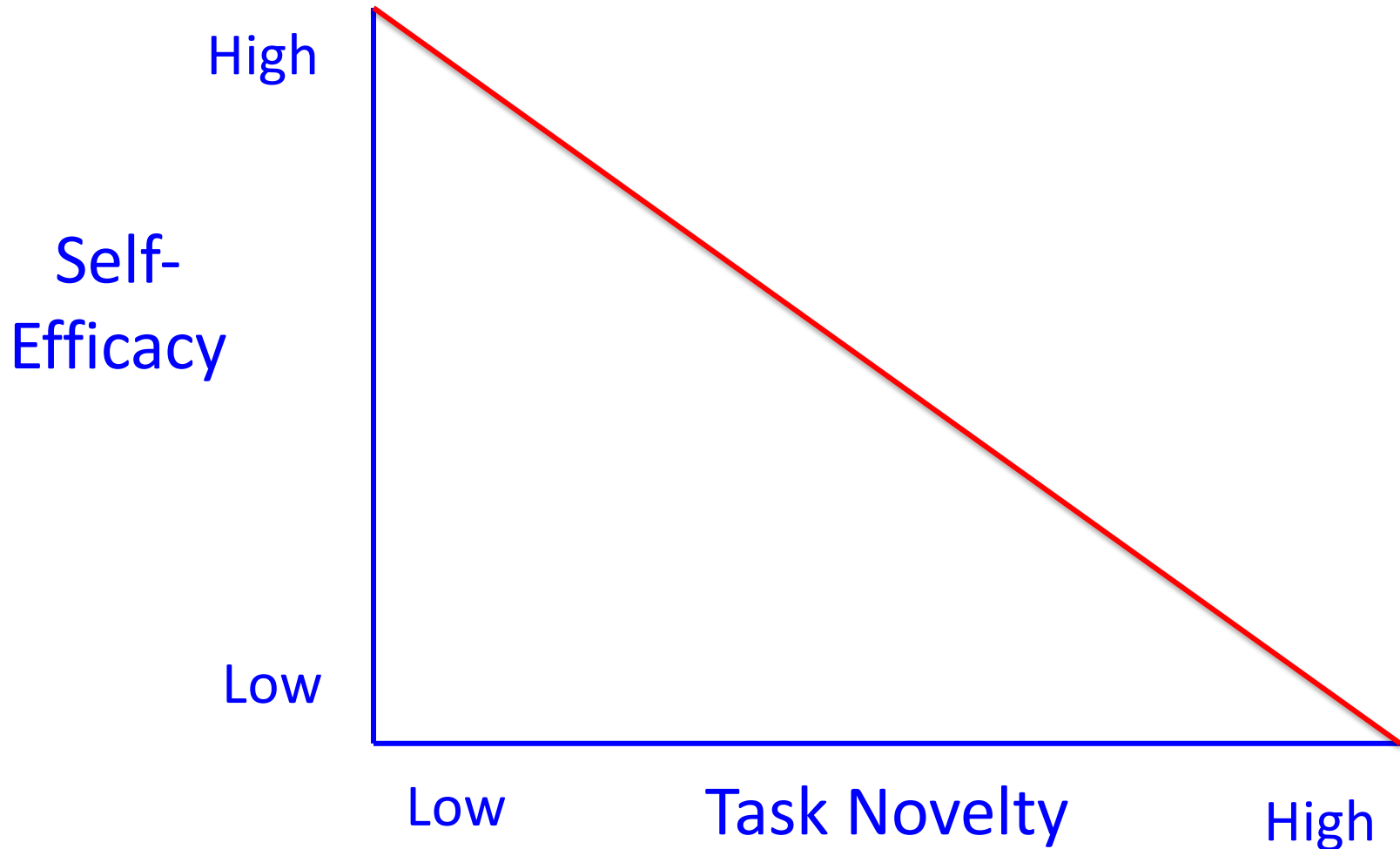
# Cognitive Load & Mental Effort







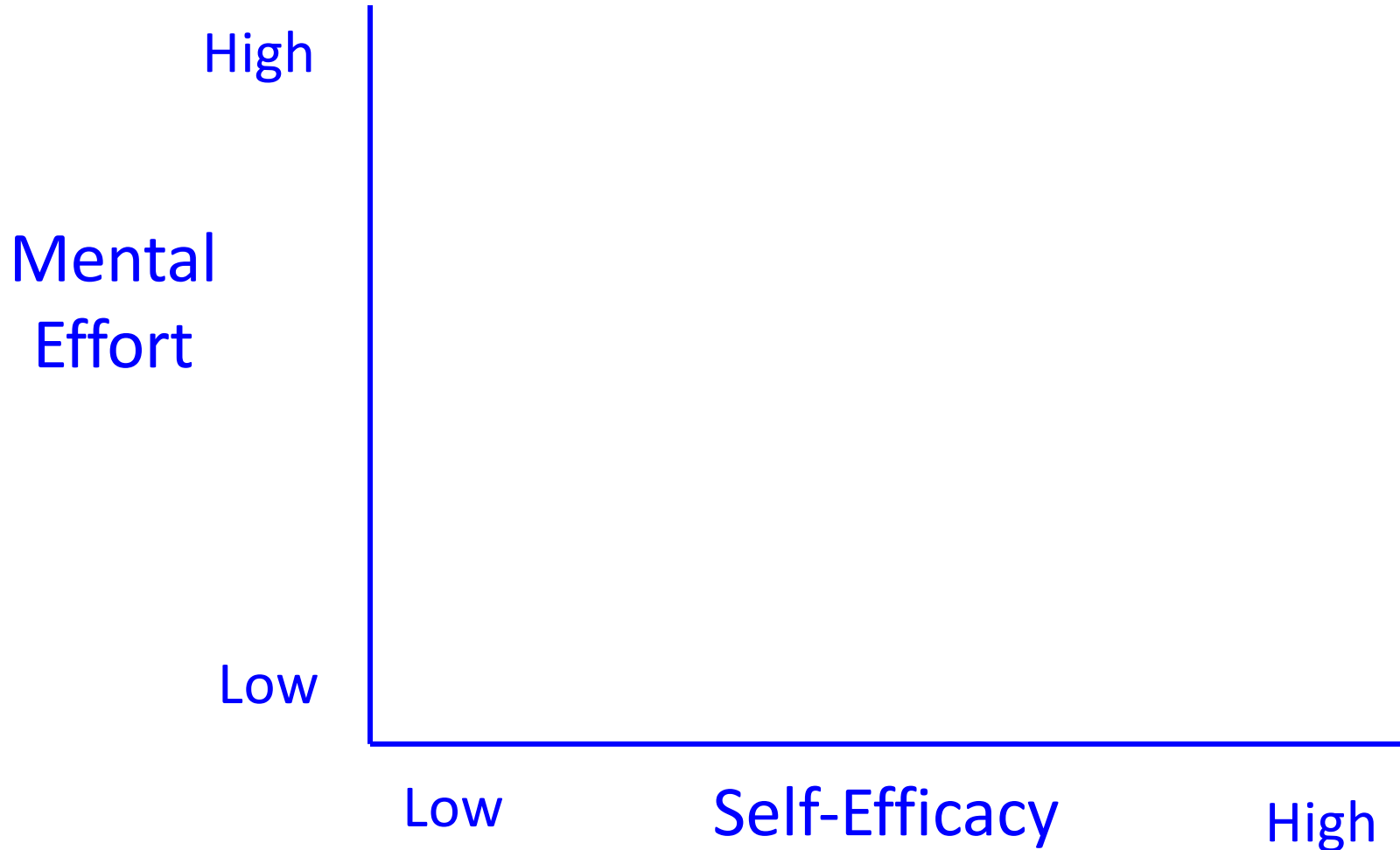


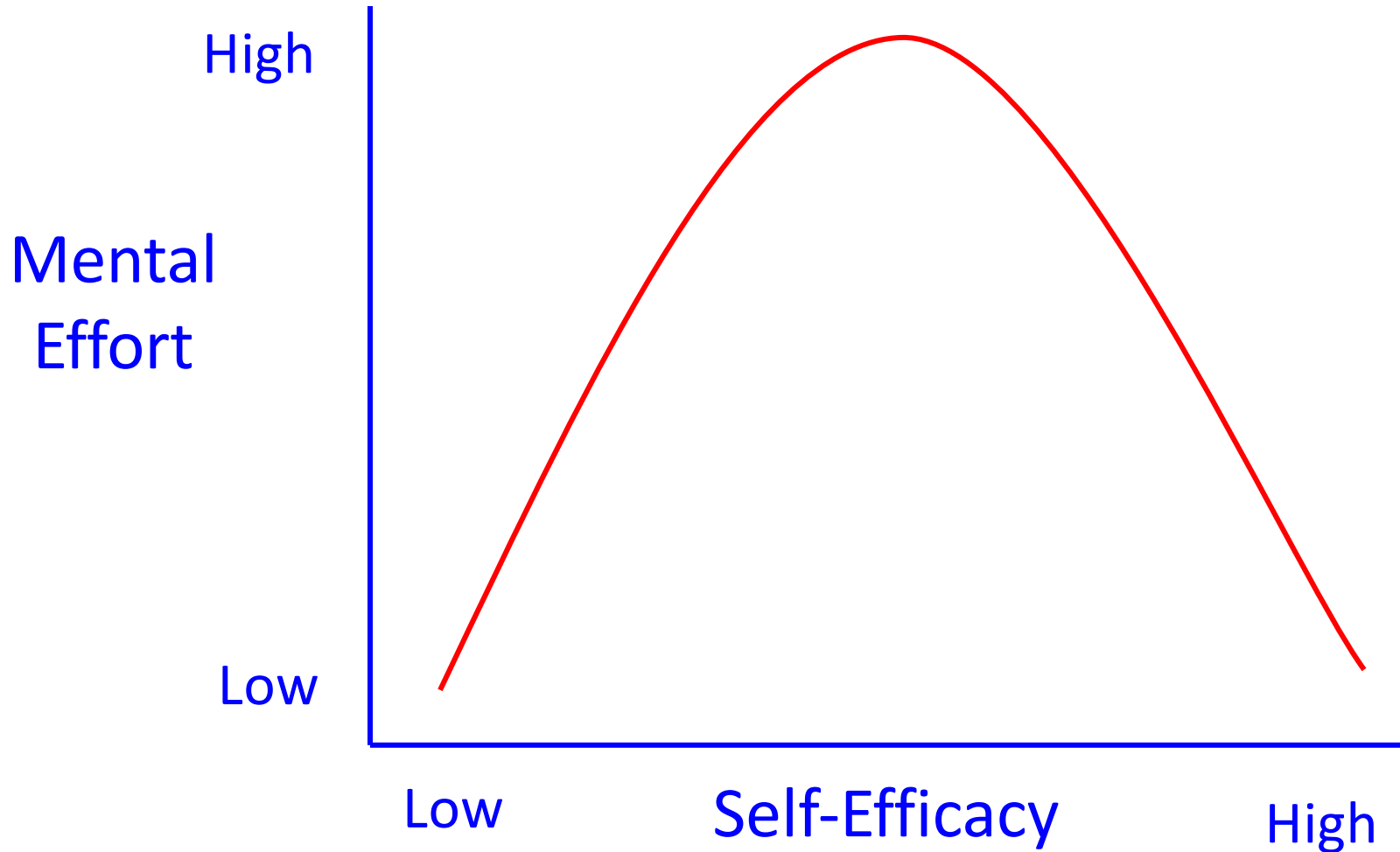


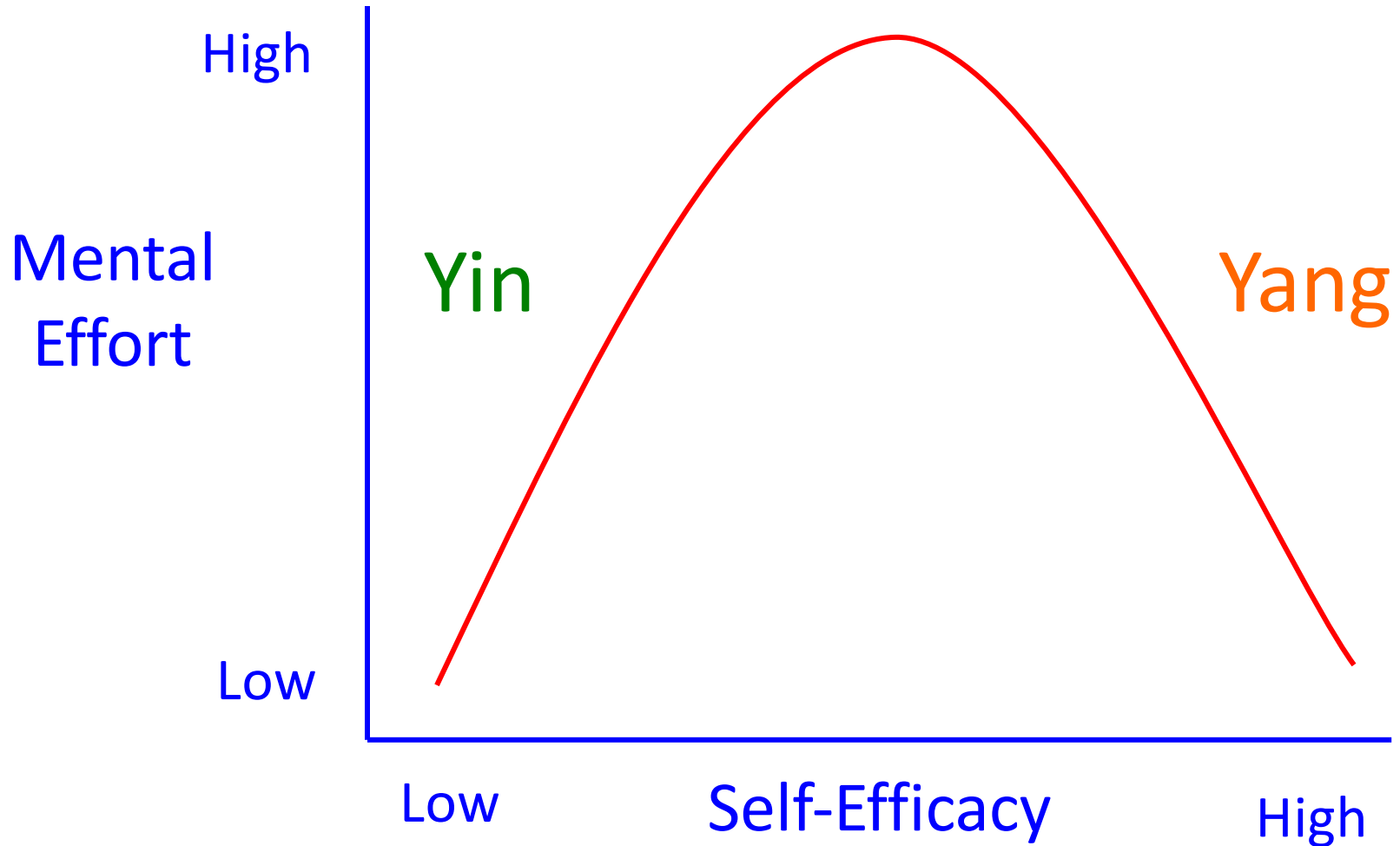


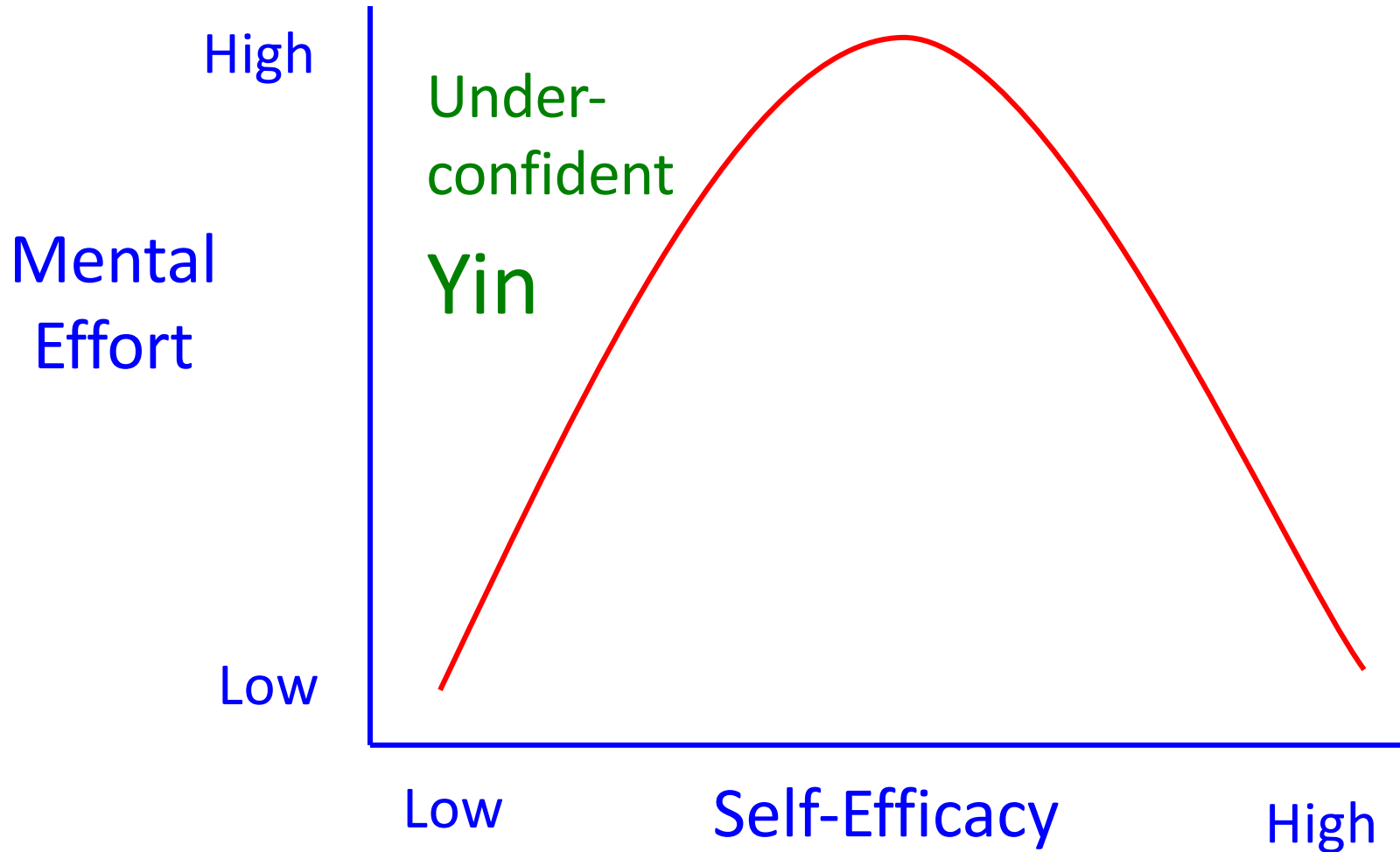
UNITED STATES MILITARY ACADEMY  
**WEST POINT**

# Self-Efficacy & Mental Effort



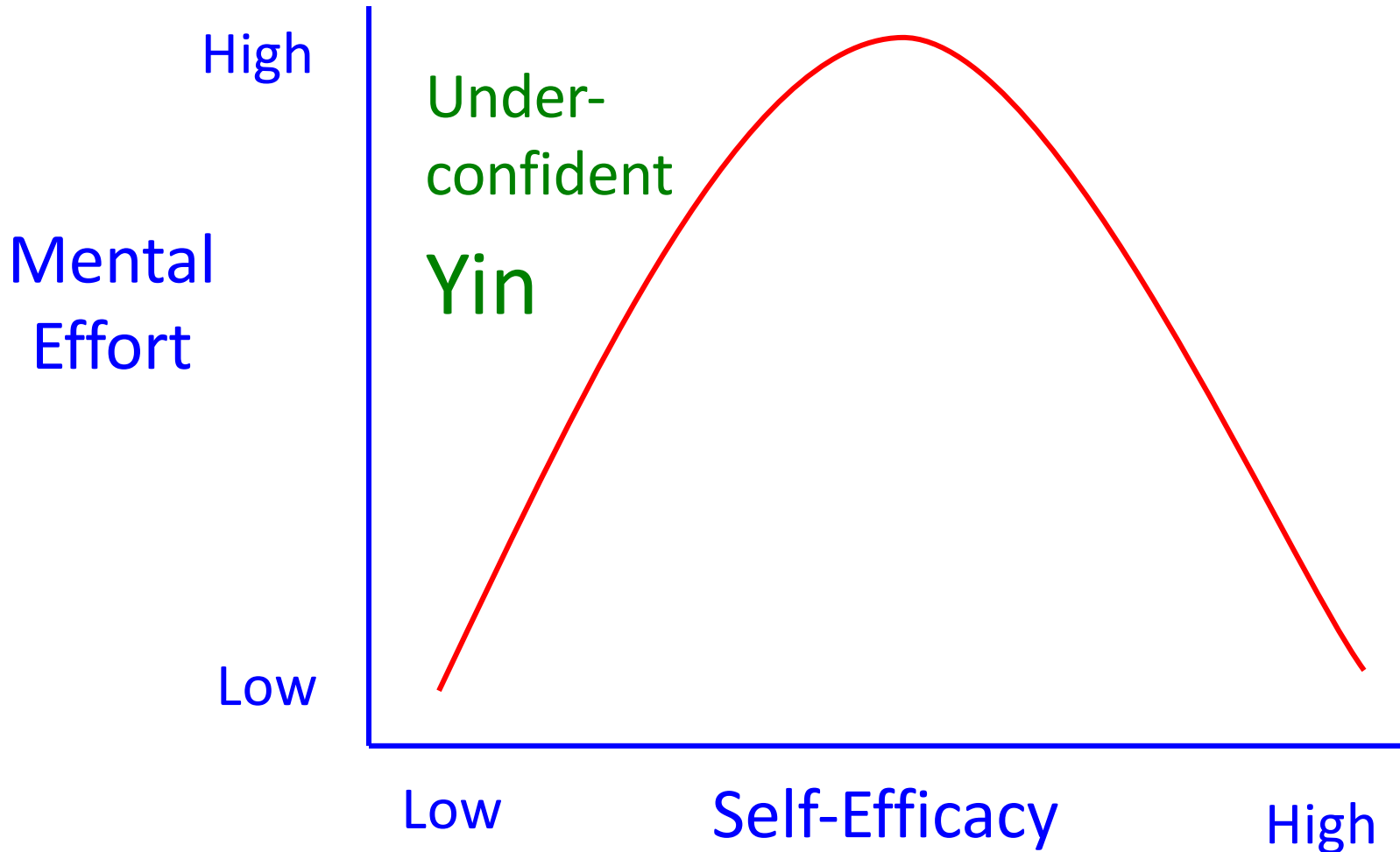






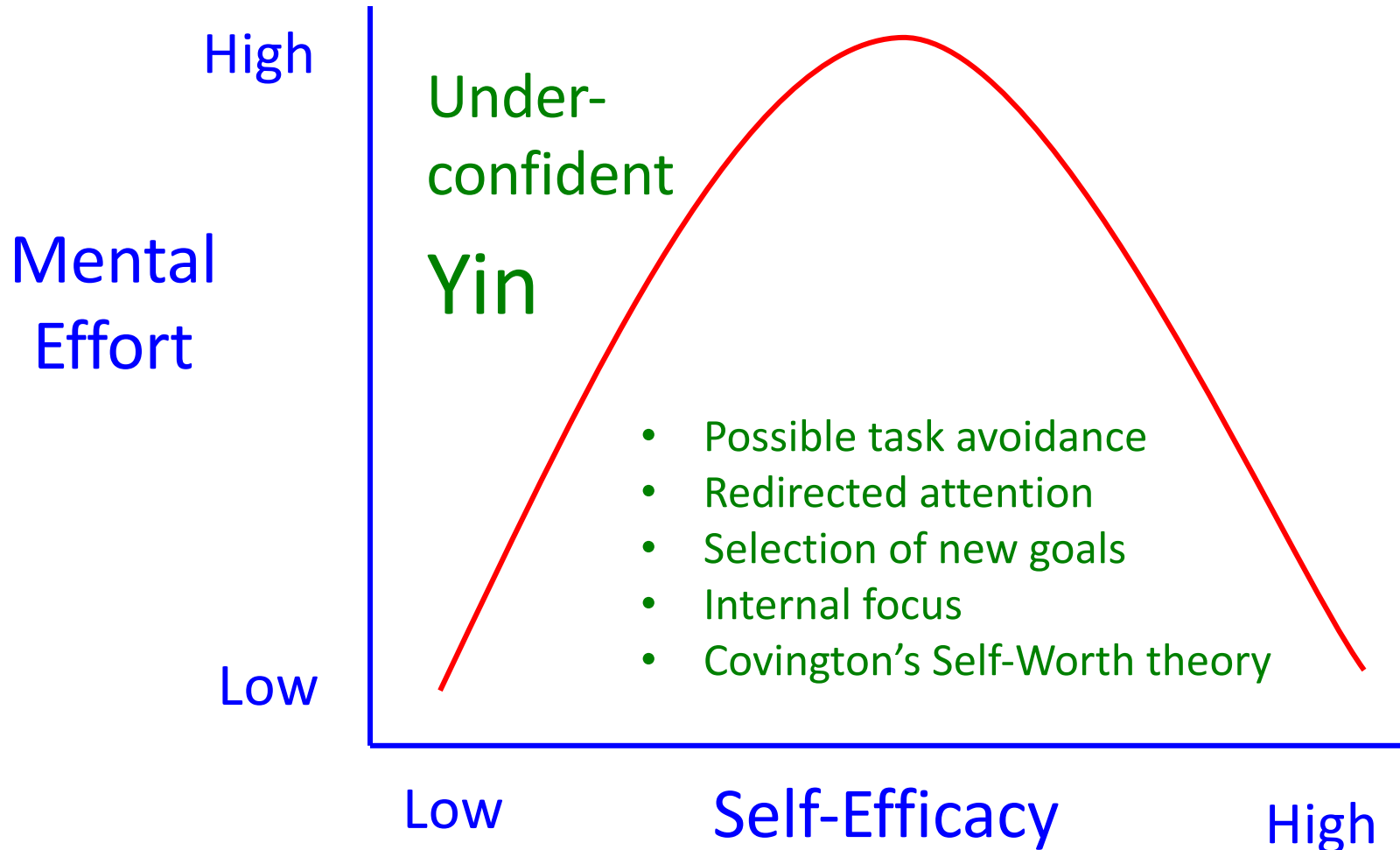


*Routine problem is perceived to be novel.*



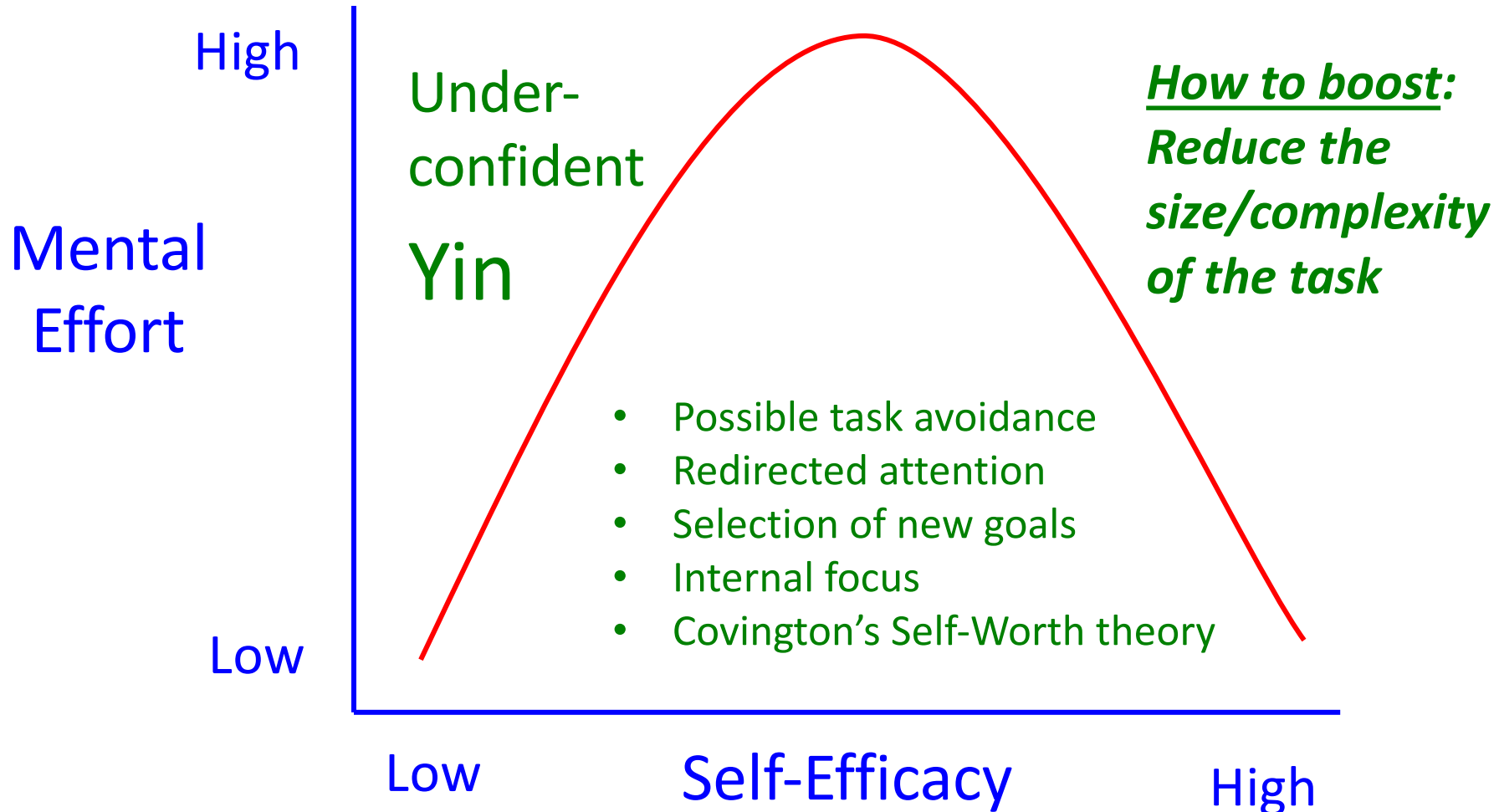


*Routine problem is perceived to be novel.*

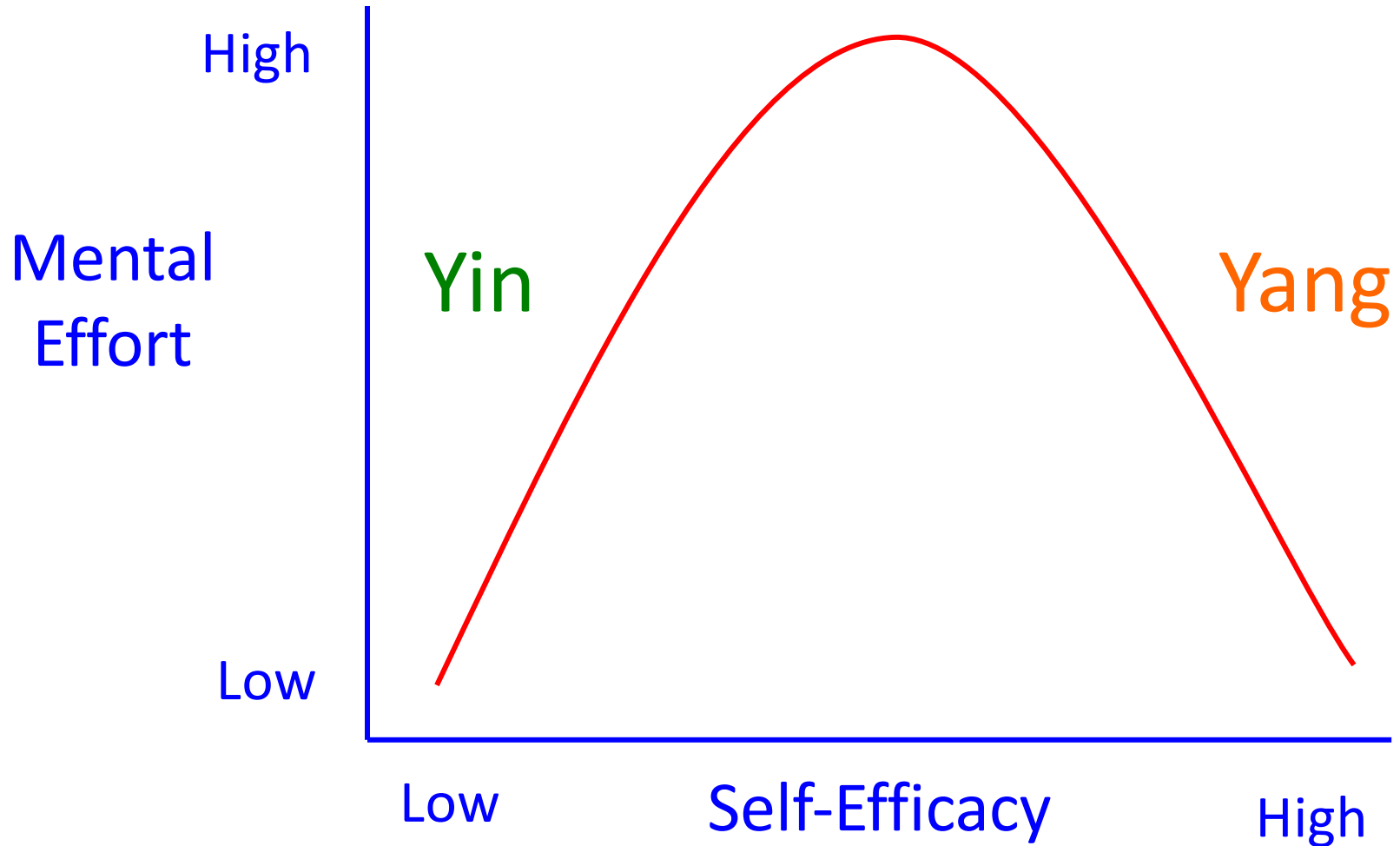


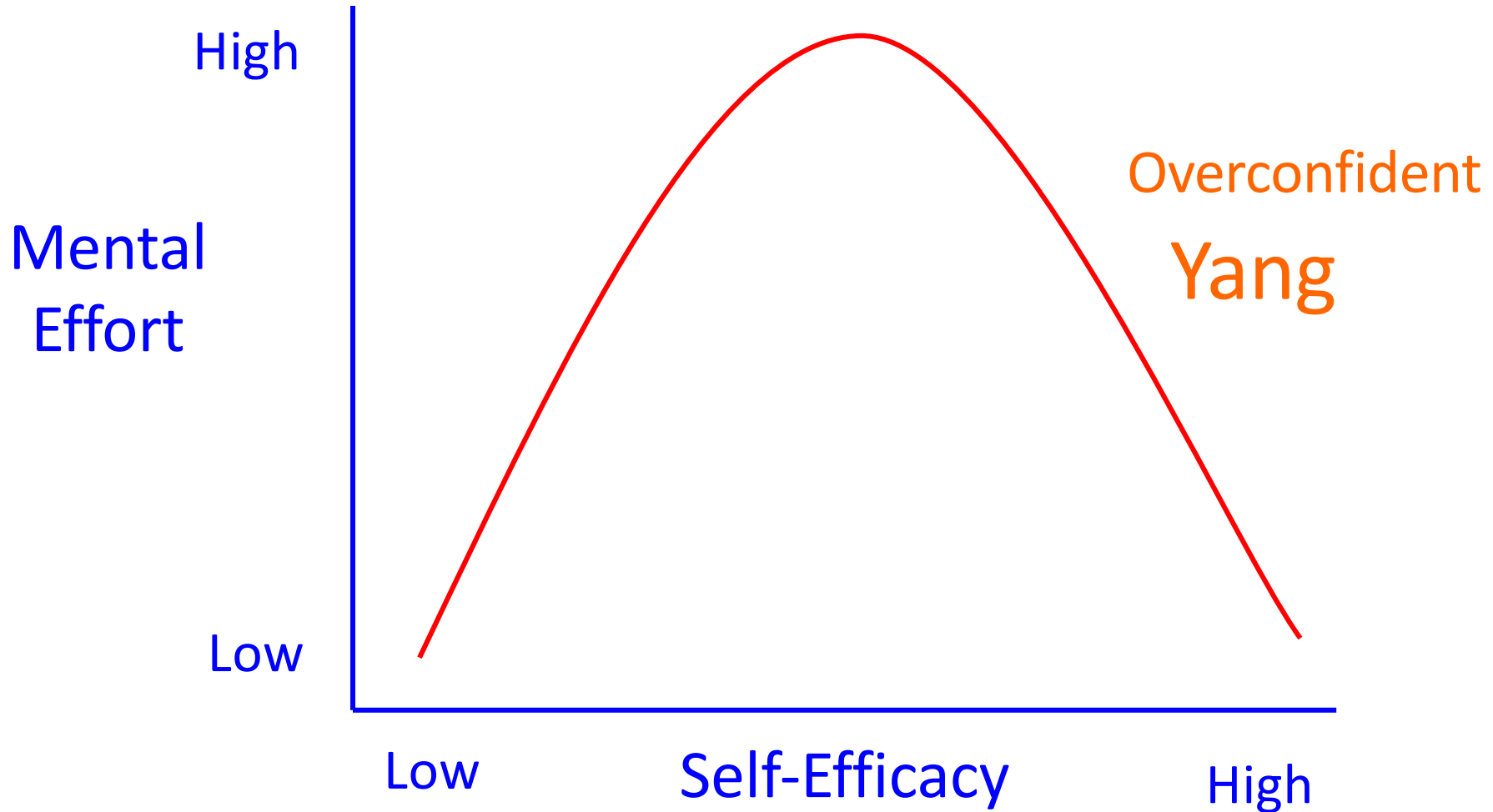


*Routine problem is perceived to be novel.*



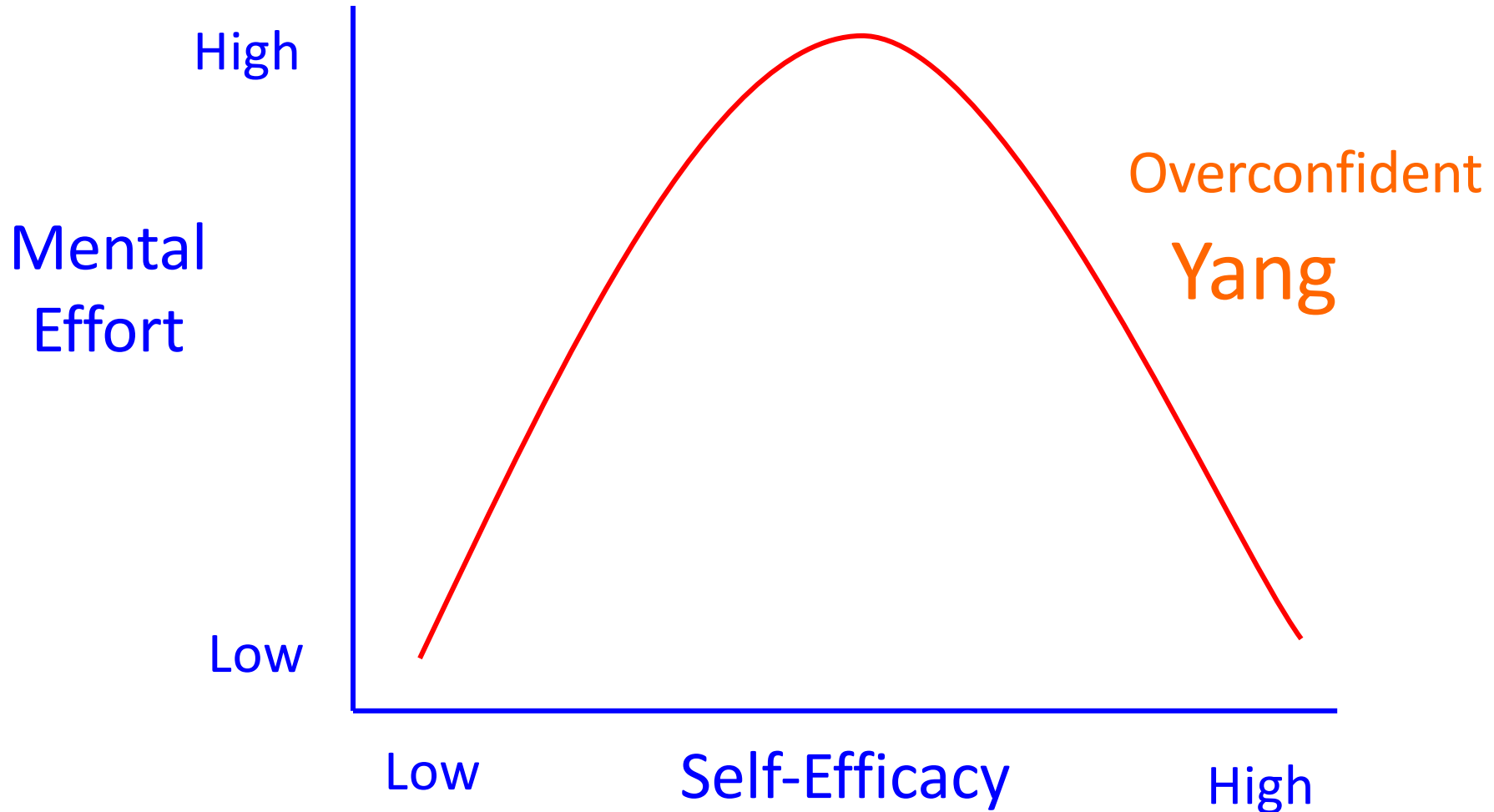






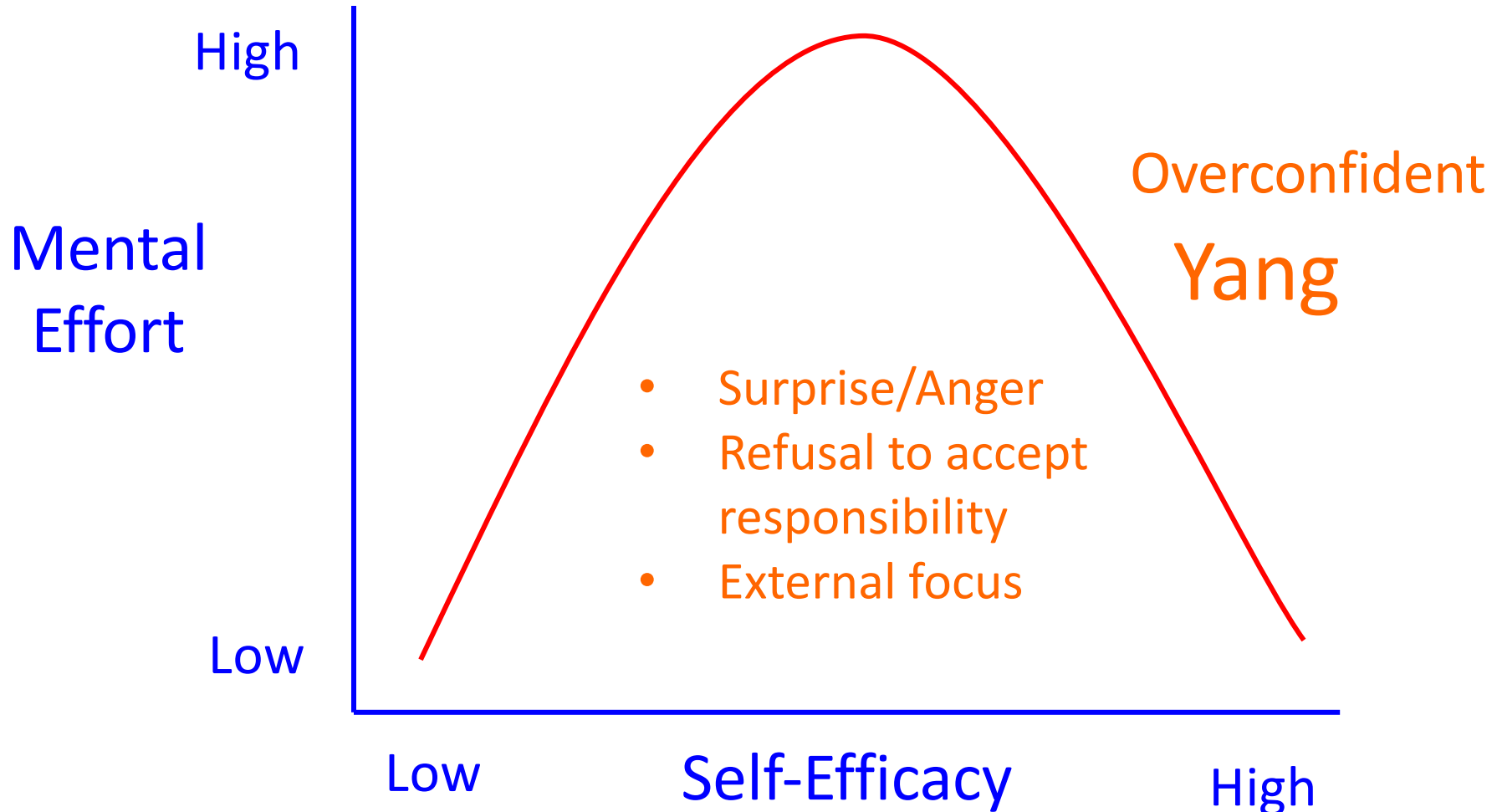


*Novel problem is perceived to be routine.*



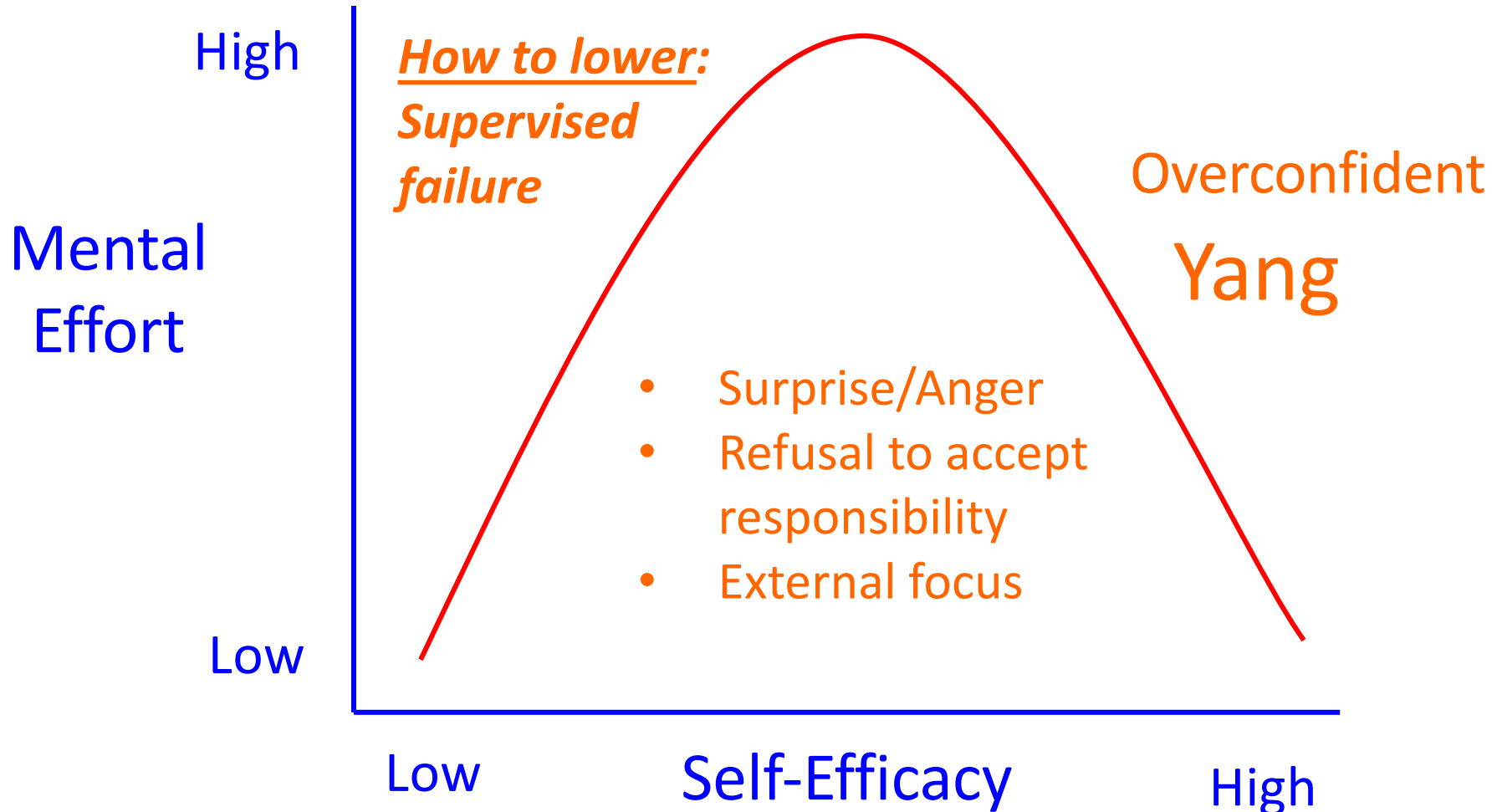


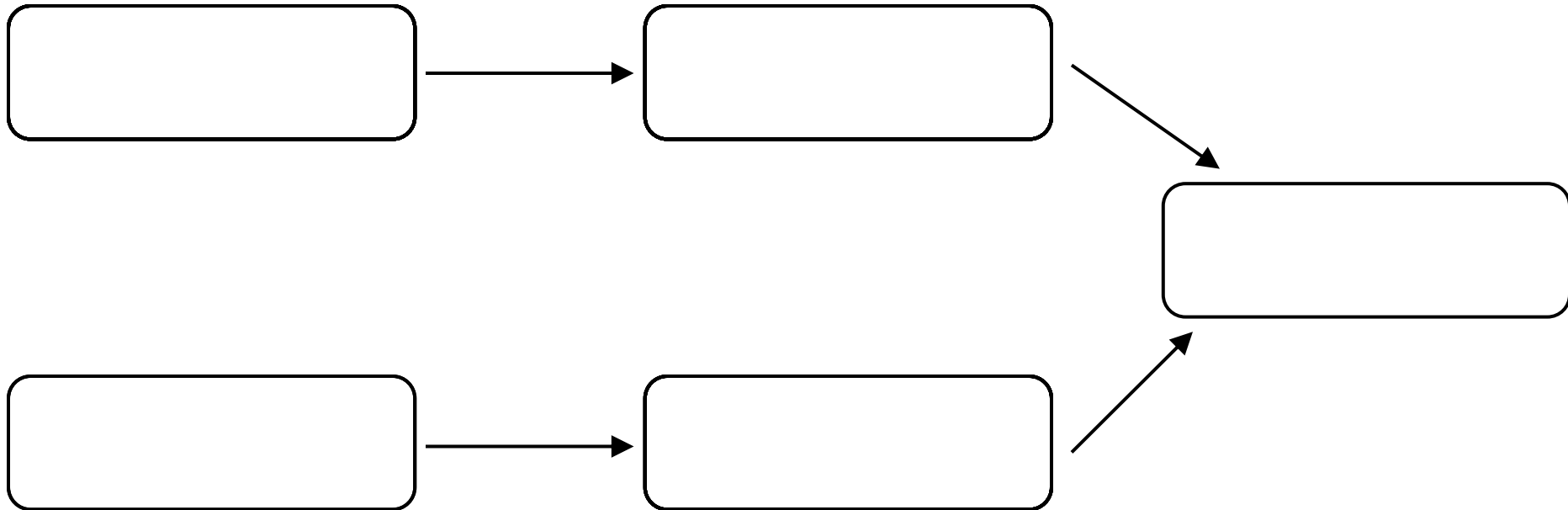
*Novel problem is perceived to be routine.*

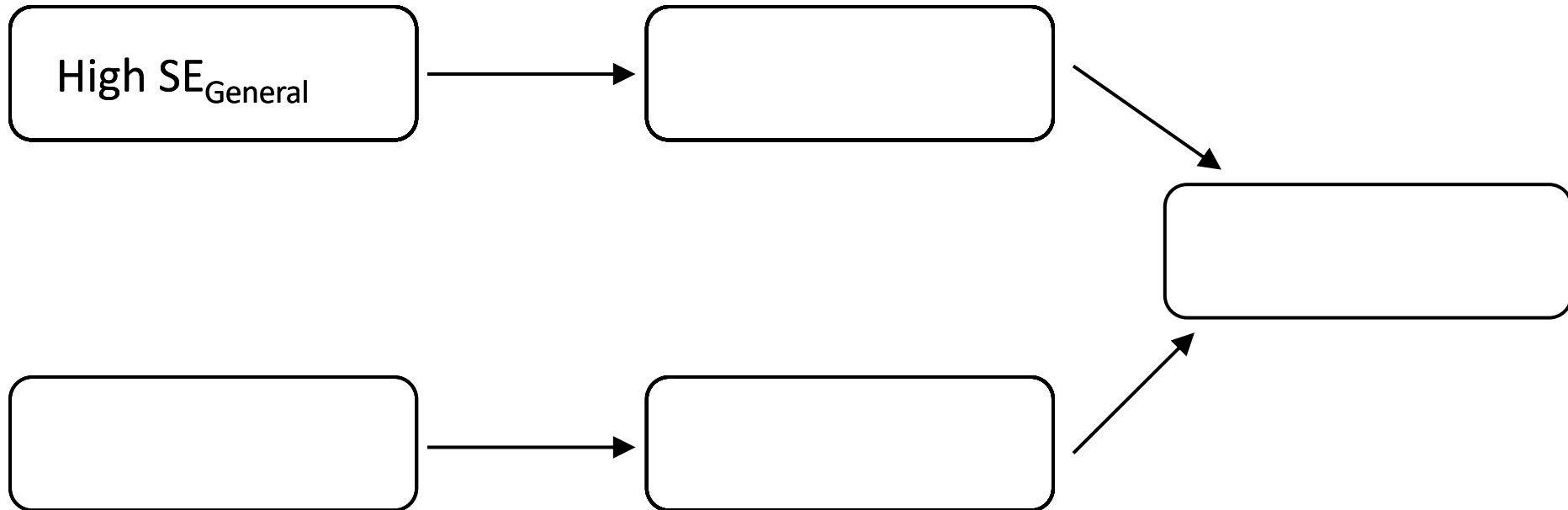


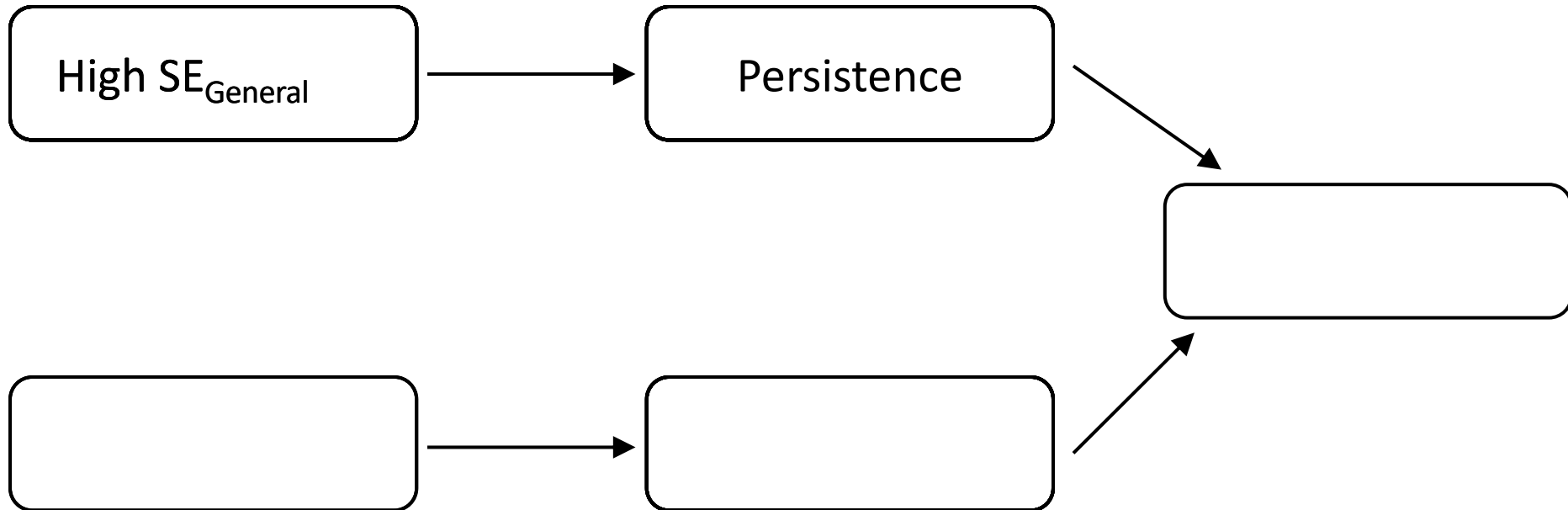


*Novel problem is perceived to be routine.*

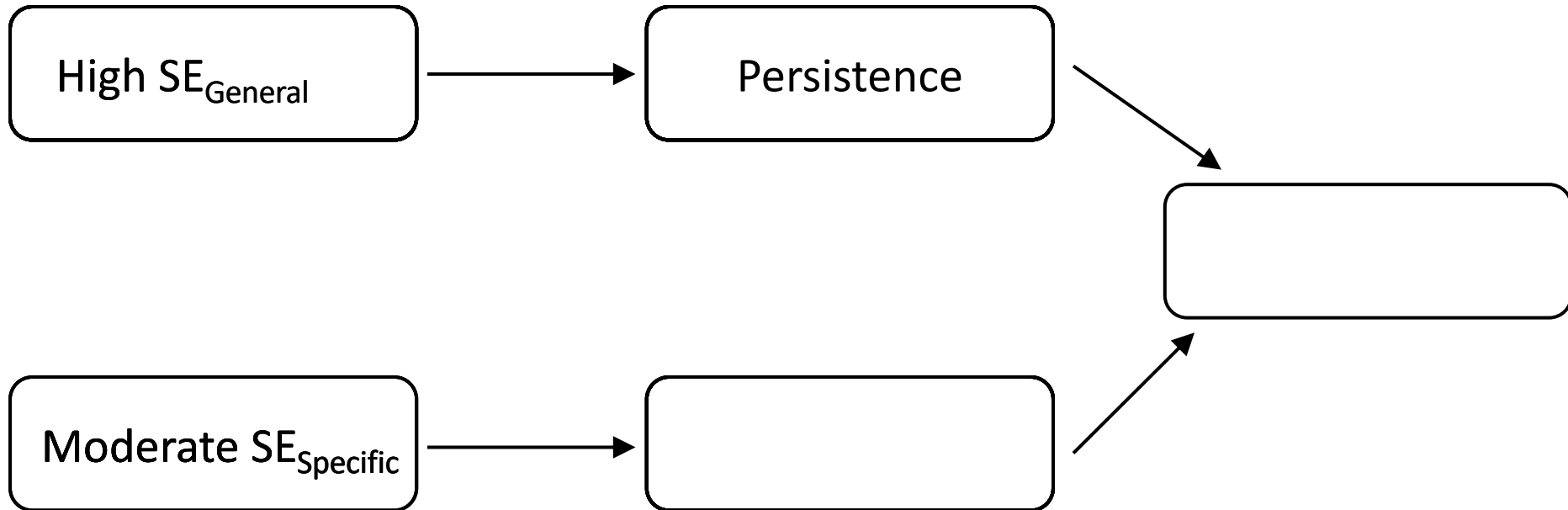


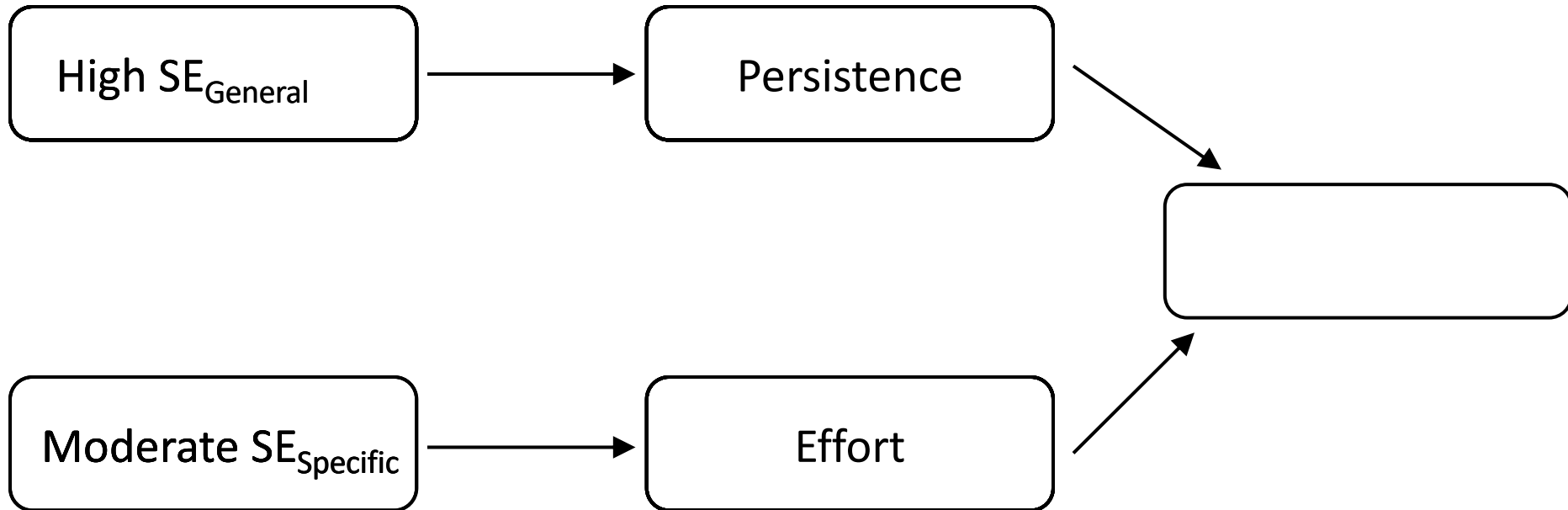


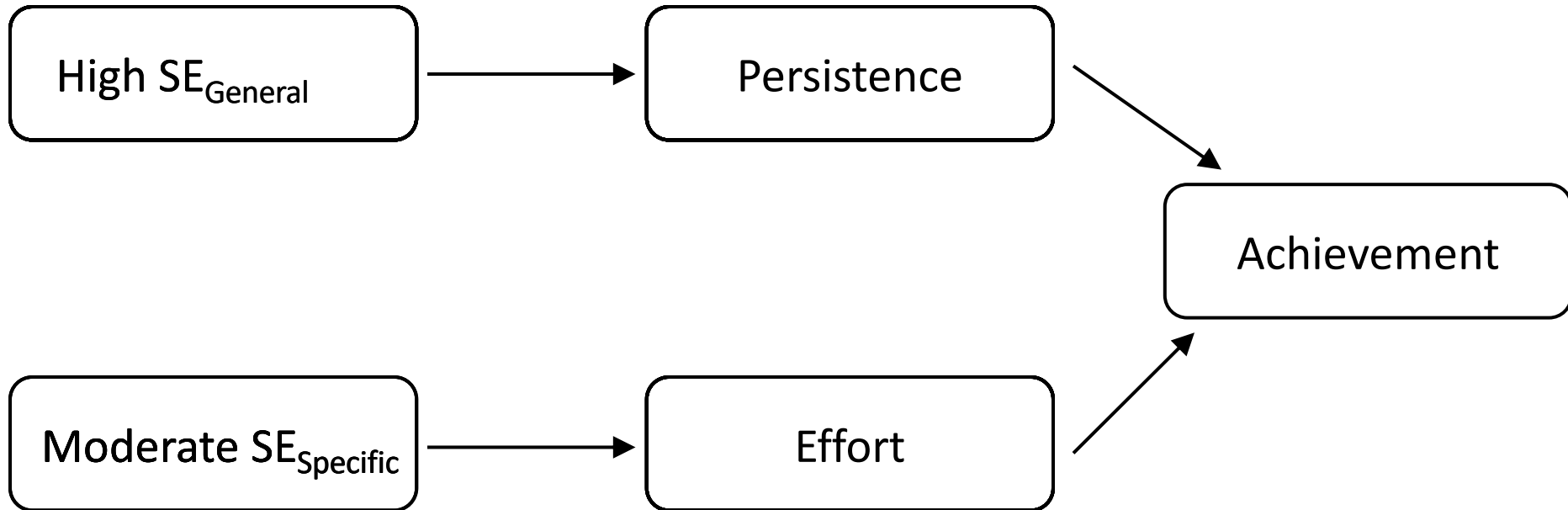














*How do we interest people in **uninteresting** work/material/activities?*

- Definitions
- Current beliefs/practices
- Solution



		Activity Value	
		Low	High
Prior Knowledge	Low		
	High		



		Activity Value	
		Low	High
Prior Knowledge	Low	Ignorance	
	High		



		Activity Value	
		Low	High
Prior Knowledge	Low	Ignorance	Attraction
	High		

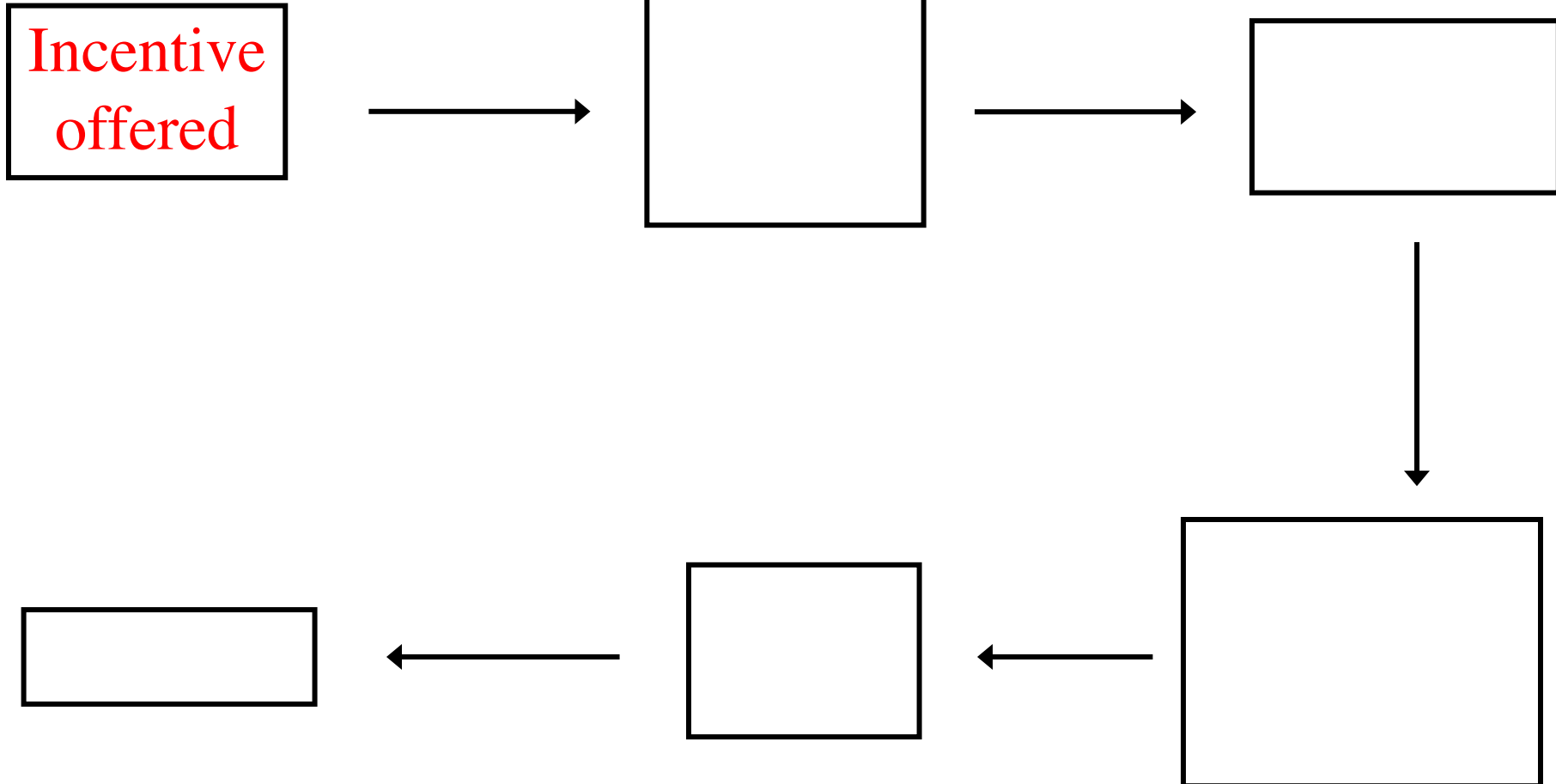


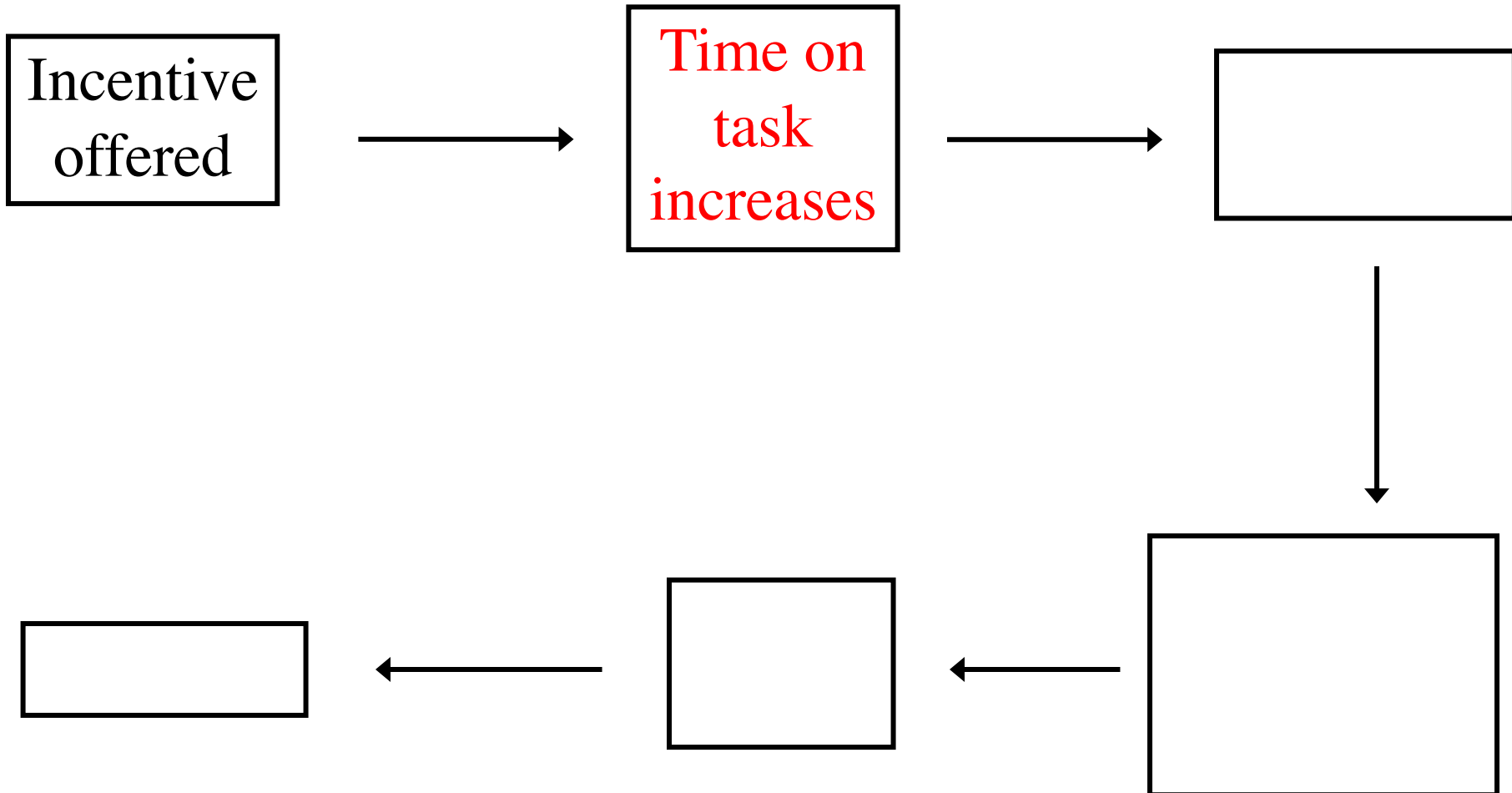
		Activity Value	
		Low	High
Prior Knowledge	Low	Ignorance	Attraction
	High	Noninterest	





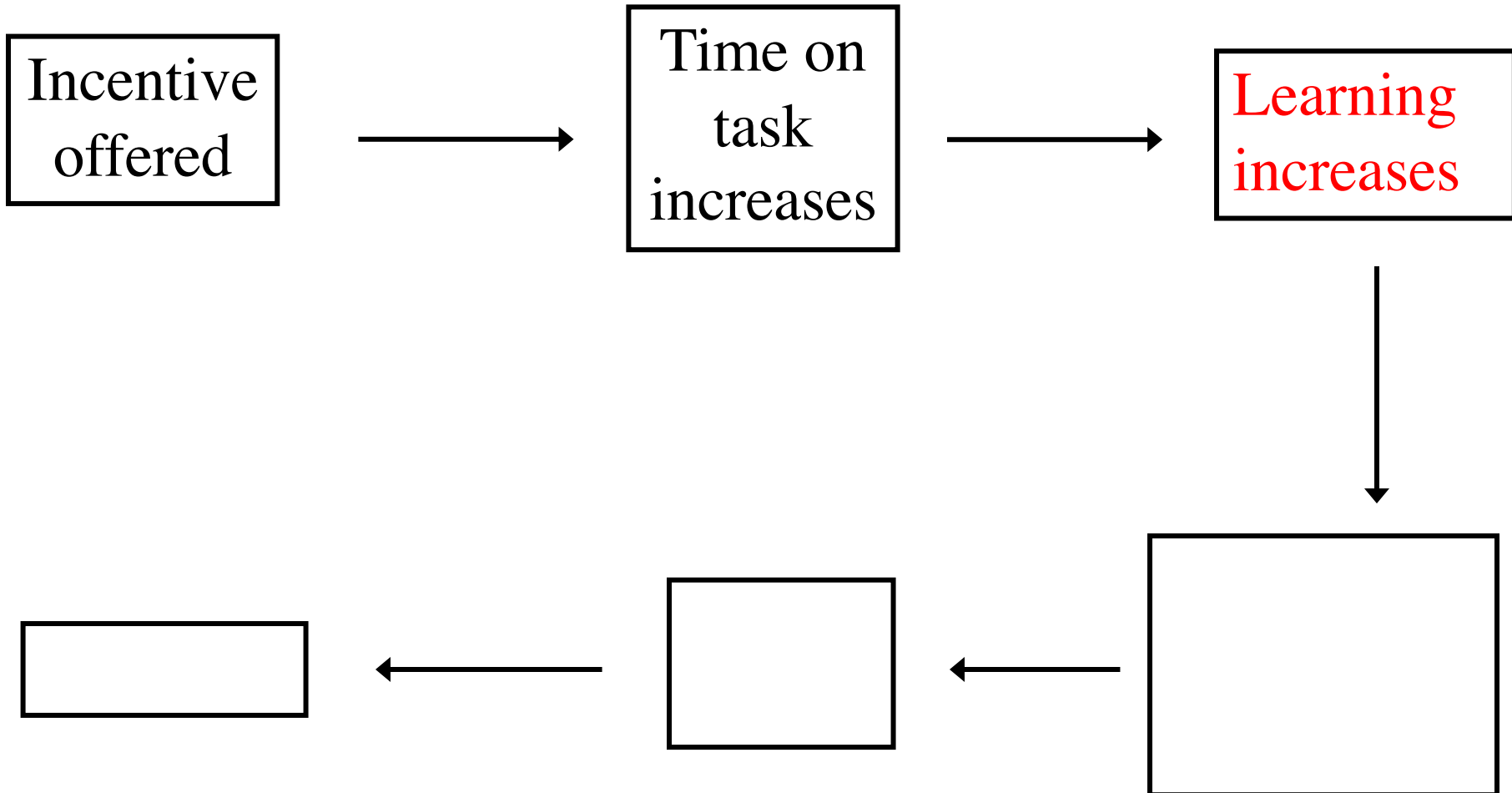
		Activity Value	
		Low	High
Prior Knowledge	Low	Ignorance	Attraction
	High	Noninterest	Interest





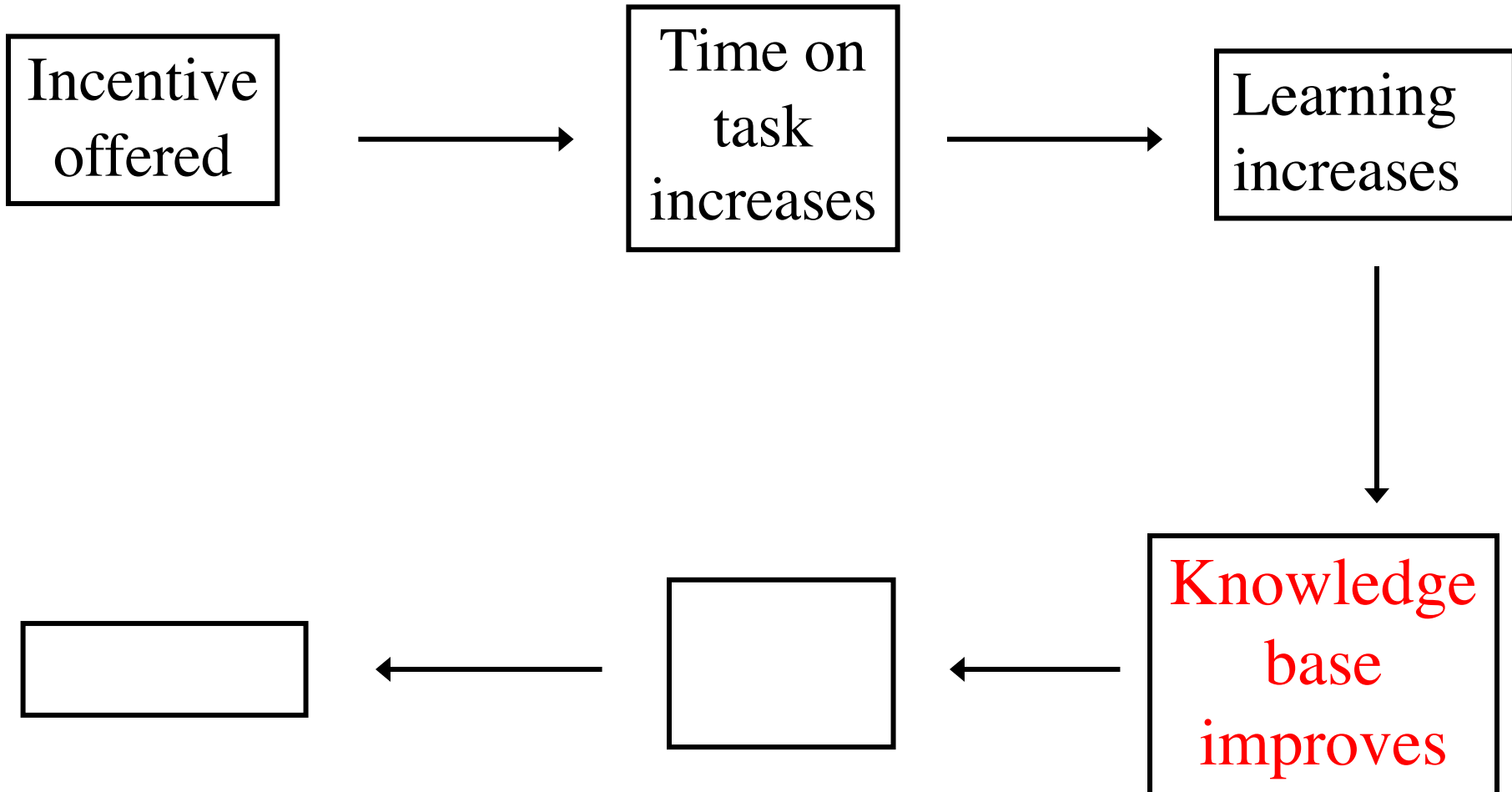


# Chain of Events



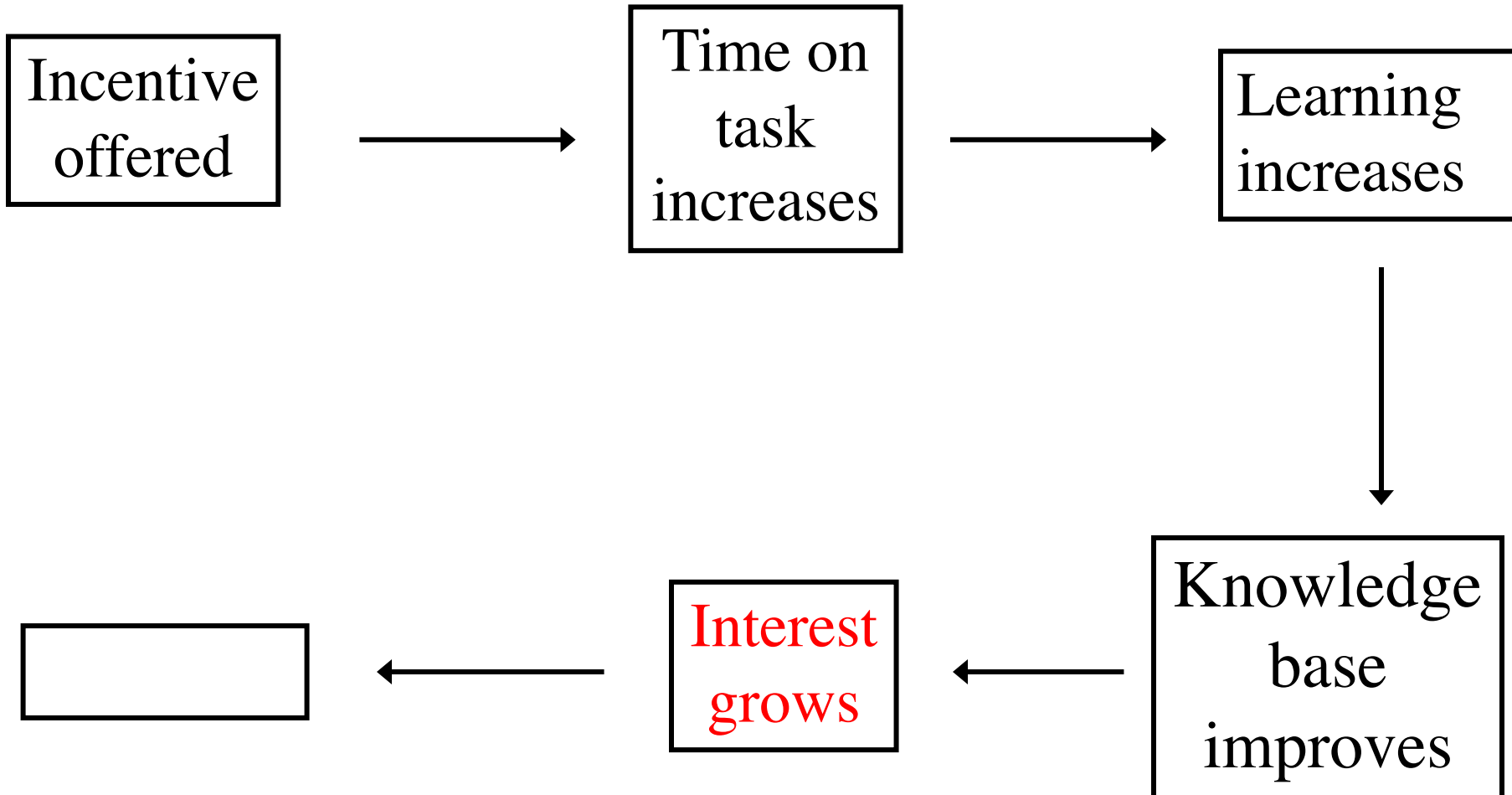


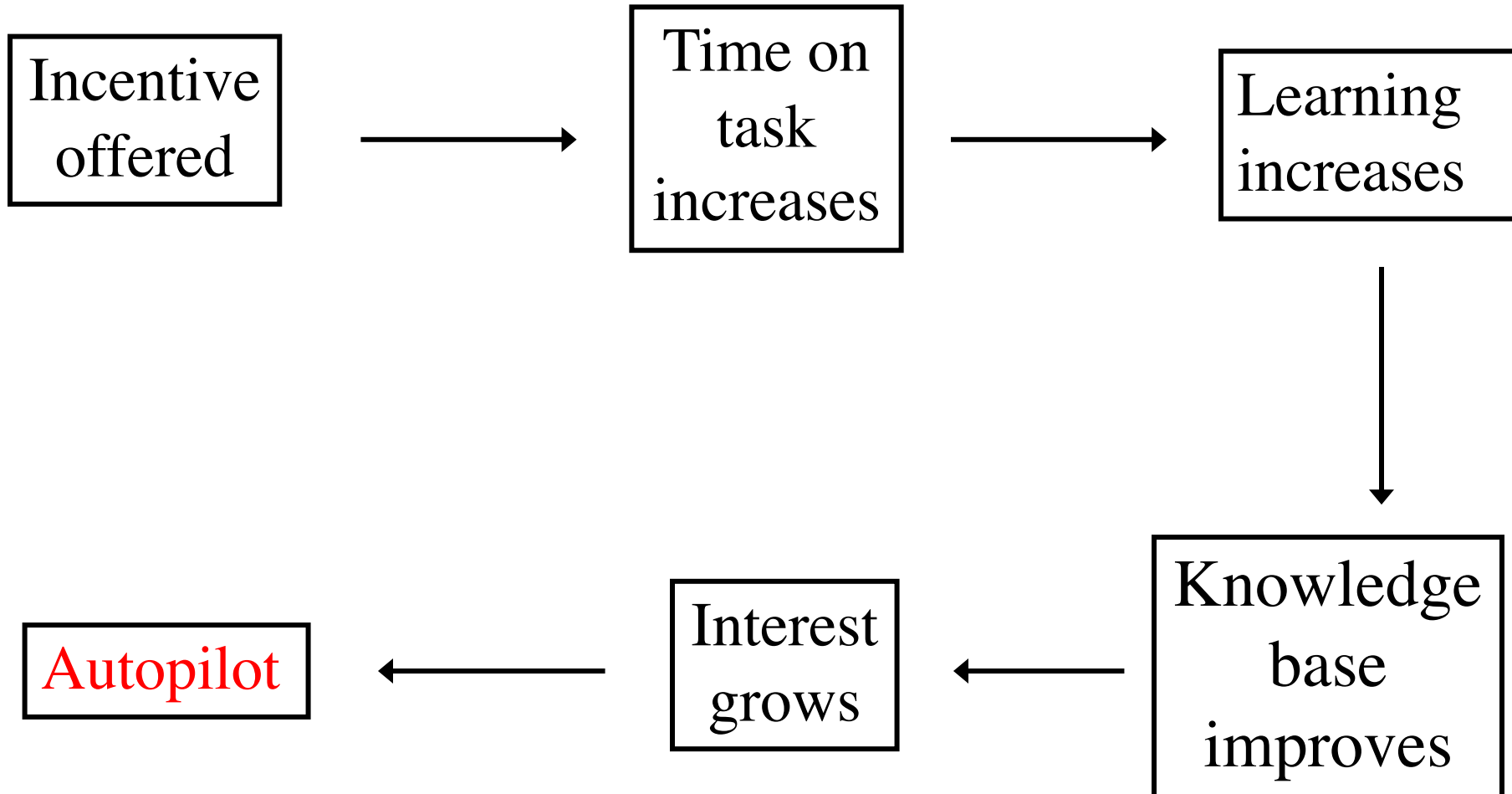
# Chain of Events





# Chain of Events







- Diversity of worked examples
  - Decomposition of complex tasks
  - Scaffolding/Support
  - Teamwork
  - Quizzing





- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman.
- Baddeley, A. (2012). Working memory: Theories, models, and controversies. *Annual Review of Psychology*, 63, 1-29.
- Chandler, P., & Sweller, J. (1991). Cognitive load theory and the format of instruction. *Cognition and Instruction*, 8(4), 293-332.
- Clark, R. C., Nguyen, F., & Sweller, J. (2006). *Efficiency in learning: Evidence based guidelines to manage cognitive load*. San Francisco, CA: Pfeiffer.
- Clark, R. E. (1994). Media will never influence learning. *Educational Technology Research and Development*, 42(2), 21-29.
- Clark, R. E. (1998). Motivating performance: Part 1—Diagnosing and solving motivation problems. *Performance Improvement*, 37(8), 39-47.
- Clark, R. E. (2005). What works in distance learning: Motivation strategies. In H. F. O'Neil, (Ed.) *What works in distance learning: Guidelines* (pp. 89-110). Greenwich, CT: Information Age Publishers.
- Clark, R. E., Howard, K., & Early, S. (2006). Motivational challenges experienced in highly complex learning environments. In J. Elen & R. E. Clark (Eds.), *Handling complexity in learning environments: Theory and research* (pp. 27-43). Oxford, G. B.: Elsevier.
- Eccles, J. S., & Wigfield, A. (1995). In the mind of the actor: The structure of adolescents' achievement task values and expectancy-related beliefs. *Personality and Social Psychology Bulletin*, 21(3), 215-225.
- Izard, C. E. (1991). *The psychology of emotions*. New York, NY: Plenum Press.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting & task performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review*, 12(3), 265-310.



- Axelrod, R. (1973). Schema theory: An information processing model of perception and cognition. *American Political Science Review*, 67(4), 1248-1266.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman.
- Baddeley, A. (2012). Working memory: Theories, models, and controversies. *Annual review of psychology*, 63, 1-29.
- Chandler, P., & Sweller, J. (1991). Cognitive load theory and the format of instruction. *Cognition and Instruction*, 8(4), 293-332.
- Chi, M., Glaser, R., & Rees, E. (1982). Expertise in problem solving. In R. Sternberg (Ed.), *Advances in the psychology of human intelligence* (pp. 7-75). Hillsdale, NJ: Erlbaum.
- Clark, R. C., Nguyen, F., & Sweller, J. (2006). *Efficiency in learning: Evidence based guidelines to manage cognitive load*. San Francisco, CA: Pfeiffer.
- Cooper, E. (2009). Overloading on slides: Cognitive load theory and Microsoft's slide program PowerPoint. *AACE Journal*, 17(2), 127-135.
- Cowan, N. (2010). The magical mystery four: How is working memory capacity limited, and why? *Current Directions in Psychological Science*, 19(1), 51-57.
- Franklin, M. S., Smallwood, J., Zedelius, C. M., Broadway, J. M., & Schooler, J. W. (2015). Unaware yet reliant on attention: Experience sampling reveals that mindwandering impedes implicit learning. *Psychonomic Bulletin & Review*, 23(1), 223-229.
- Kirschner, P. A. (2002). Cognitive load theory: Implications of cognitive load theory on the design of learning. *Learning and Instruction*, 12(1), 1-10.