

Making Experience Count: The Role of Reflection in Individual Learning

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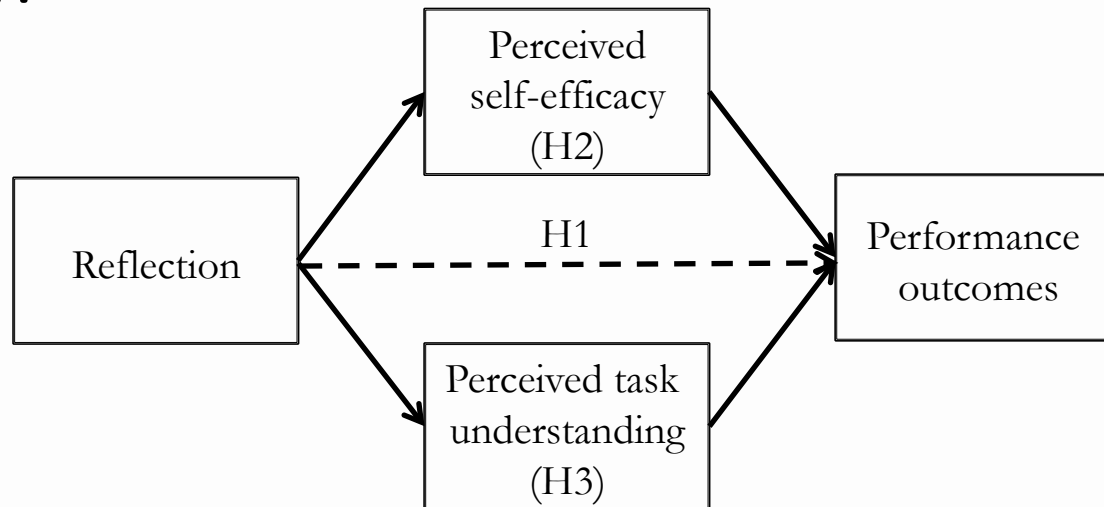
Bradley Staats, UNC

Microfoundations of organizational learning

- Two sources of learning:
 - Accumulation of additional experience (practice or experiential learning)
 - Deliberate effort to articulate and codify past experience (reflection or deliberate learning)
 - Firm-level scholarship in strategy (Zollo and Winter, 2002; Kale and Singh, 2007; Heimeriks et al., 2012; 2014)
 - Micro research in OB and cognitive psychology (Anseel et al., 2009; Schippers et al., 2013; 2014; Ellis et al., 2014)

The paper in a nutshell

- Our story:



- Method: a field experiment in a large business process outsourcing company in India, and two lab experiments.
- Results: performance increases of 21% when individuals are forced to reflect instead of practicing, effect of both mechanisms, but prevalence of cognitive one

TESTING THE MAIN EFFECT

Study 1: Field Experiment

- Employees (called “agents”) provide technical support for a US-based, global technology company
- Agents join in batches of 10-25 agents, between June and September 2013
- One single account, for a total of 101 agents
- Performance evaluated independently by Wipro through score on technical competency exam (used by Wipro to select the agents who can move to the operating floor)



Study 1: Manipulations

Control

- **Four** weeks of technical process training



Reflection

- At the start of week 2, workers were asked to spend the last 15 minutes of each of the following days reflecting on the day's activities:
 - Please take the next 15 minutes to reflect on the training day you just completed. Please write about the main key lessons you learned as you were completing your training. Please reflect on and write about at least two lessons. Please be as specific as possible.

Study 1: Results

DV: Score (0-100) on Technical Competency Exam

	Model 1		Model 2	
	coef	se	coef	se
<i>Control Variables</i>				
Age	-1.797**	0.591	-1.212*	0.552
Gender	-6.780	4.151	-3.646	3.832
Work experience	0.221**	0.072	0.158*	0.067
<i>Dependent Variable</i>				
Reflection			14.843***	3.204
_cons	108.024***	14.093	84.468***	13.779
N	101		101	
F	4.539		9.489	
Adjusted R2	0.096		0.253	

*** p<0.001, ** p<0.01, * p<0.05

+21% performance
improvement
on average score

WHICH MECHANISM?

453 adults on mTurk

 $\mu_{\text{age}} = 33, \sigma_{\text{age}} = 8$

51% female

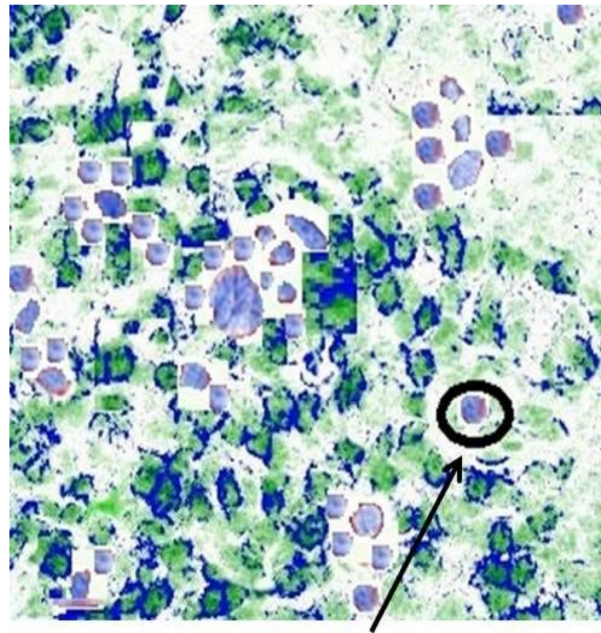
Study 2

6 count
tasks

Experimental
Manipulation

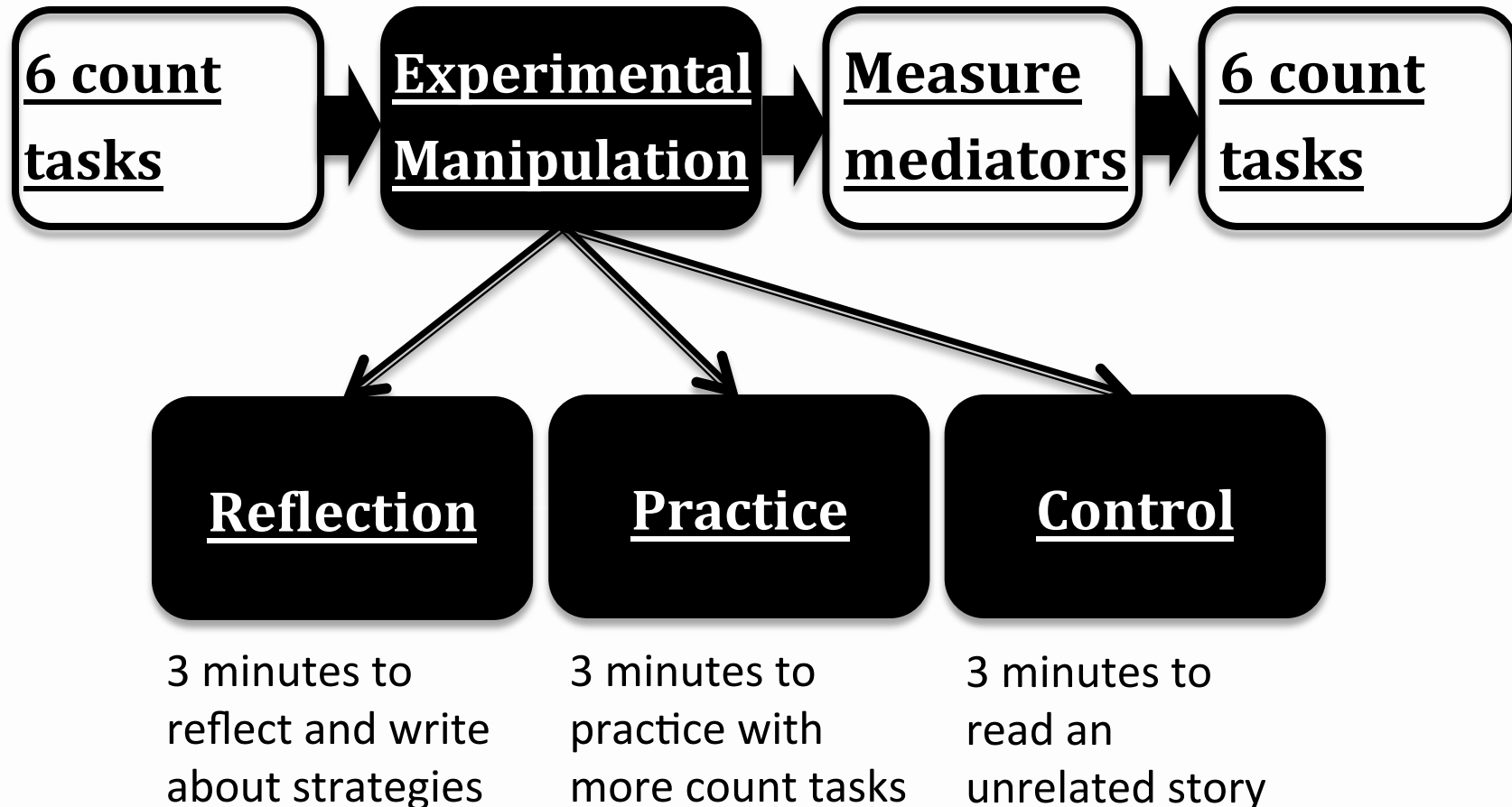
Measure
mediators

6 count
tasks

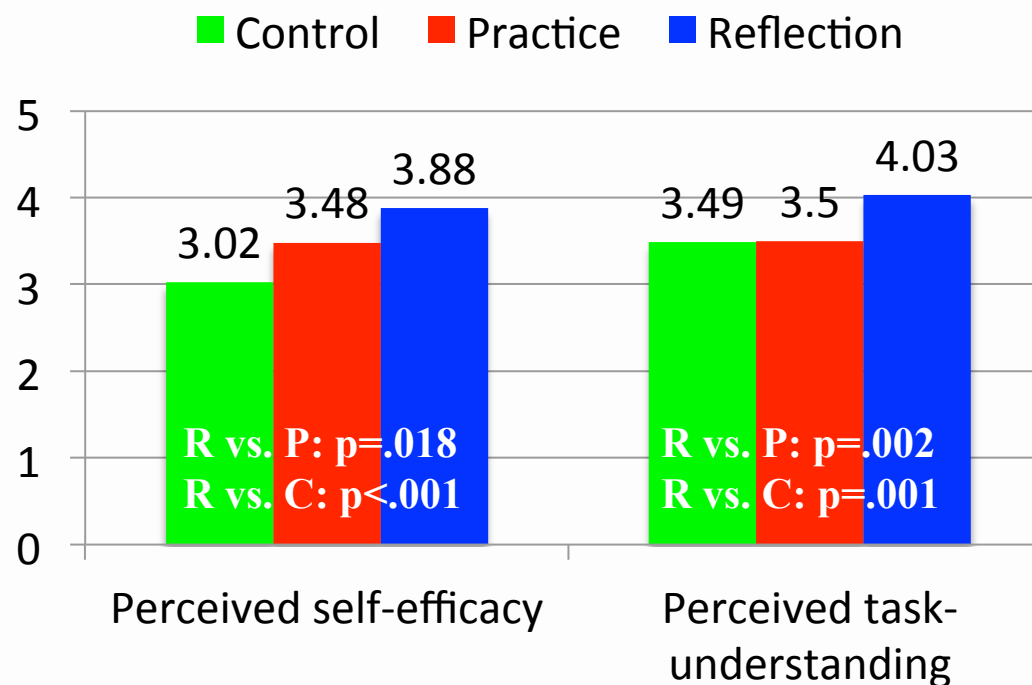
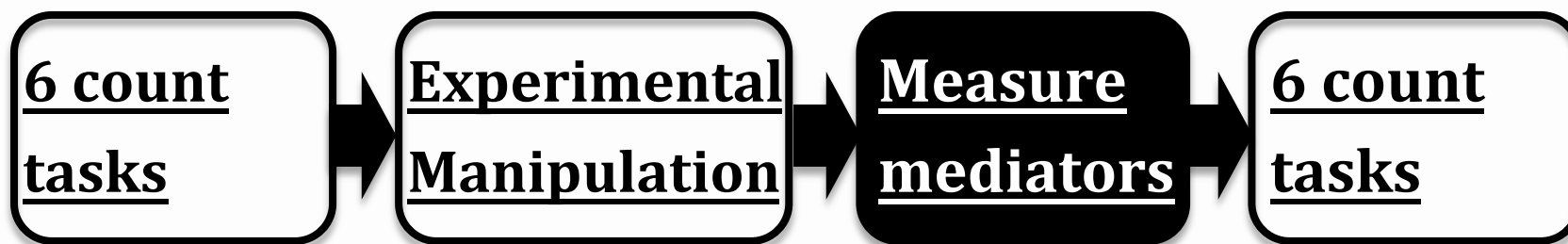


Example of a
tumor cell

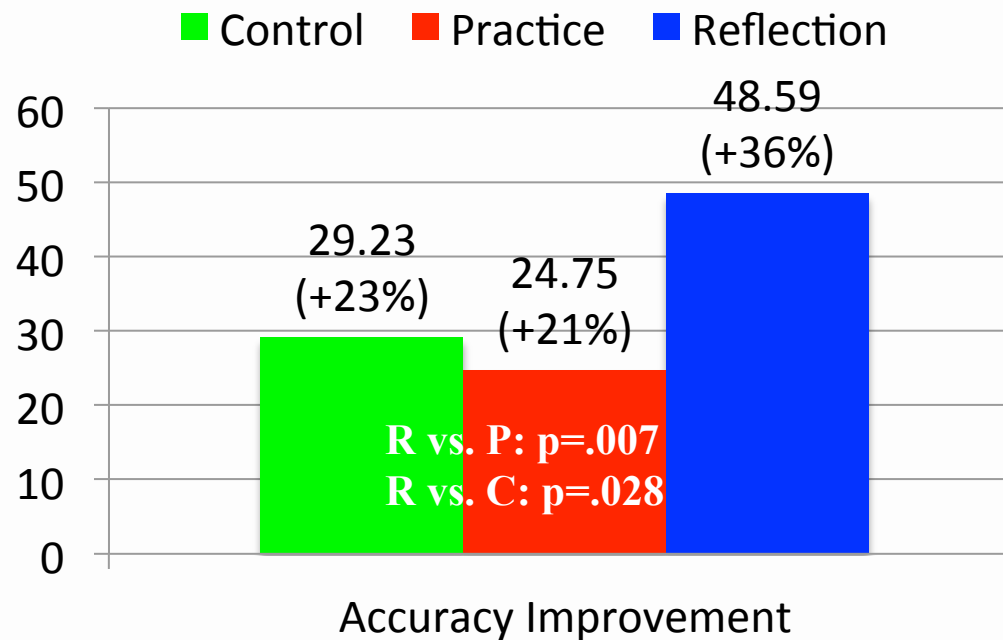
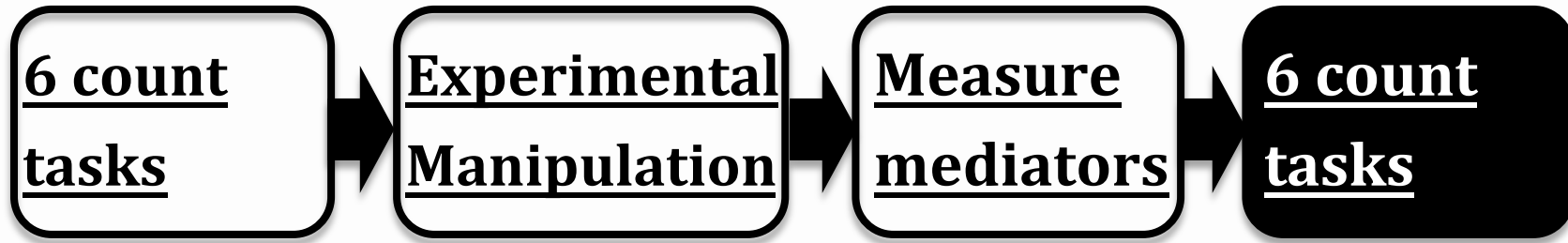
Study 2: Manipulations



Study 2: Mechanisms



Study 2: Results



Significant mediation using Preacher & Hayes (2004) with cognitive effect prevailing

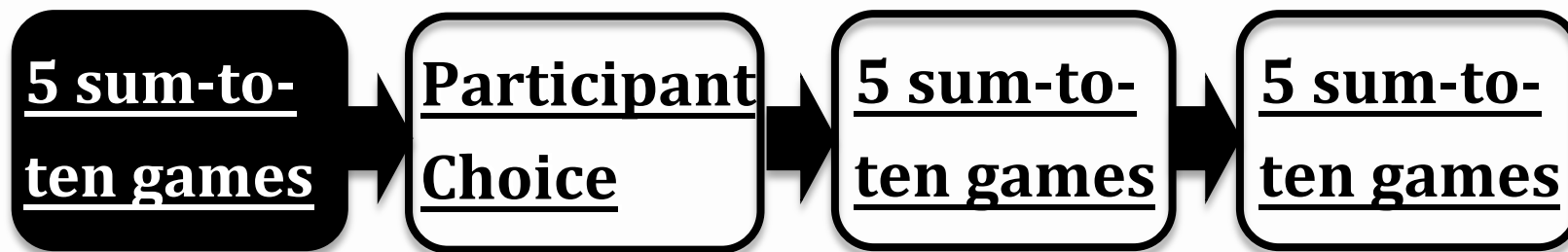
Additional Lab Studies

- Sum-to-ten-games
 - Pay for performance, no mechanism data, reflection vs. control
 - Flat pay, mechanism data, reflection vs. control
- Circuit boards
 - Pay for performance, no mechanism data, reflection vs. control
 - Flat pay, mechanism data, reflection vs. control
- Singing exercise
 - Pay for performance, no mechanism data, reflection vs. control
 - Flat pay, mechanism data, reflection vs. control

IS THIS OBVIOUS?

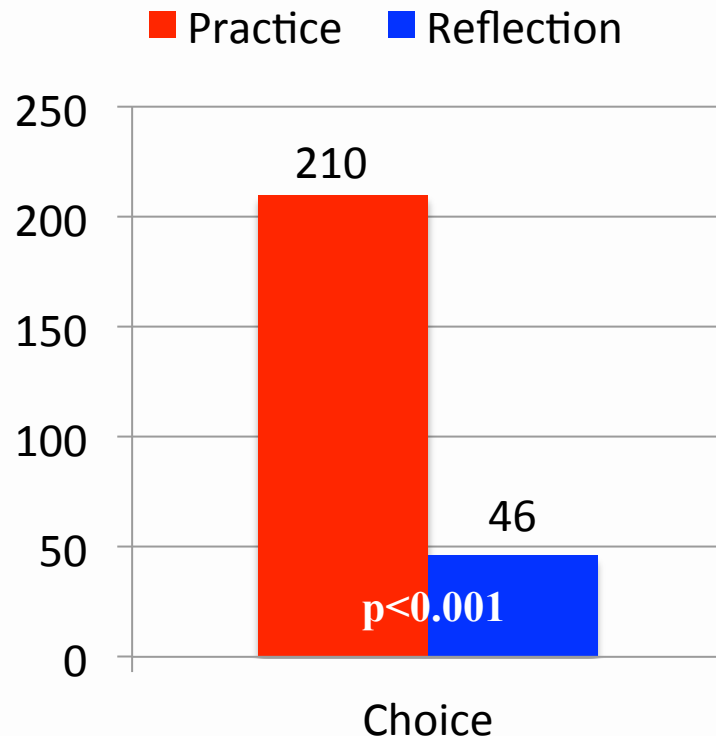
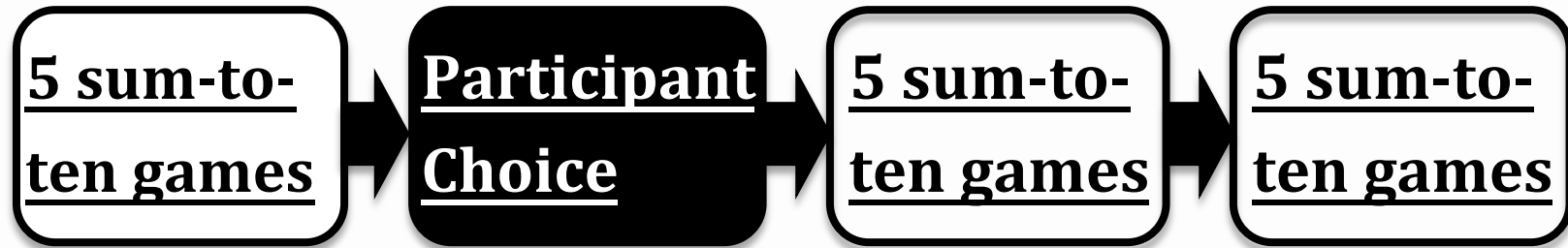
256 adults on mTurk
 $\mu_{\text{age}} = 31.7$, $\sigma_{\text{age}} = 8.5$
43.7% female

Study 3



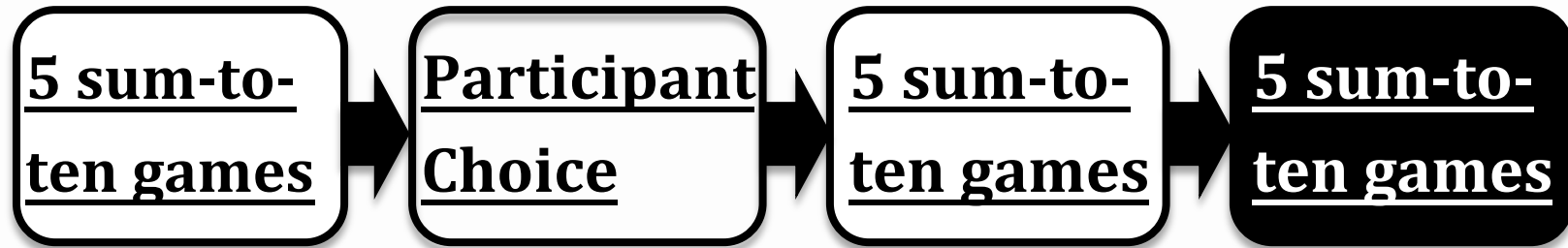
8.18	9.01	3.97
5.2	4.56	9.12
0.28	2.92	6.59
1.12	6.93	9.72

What do people prefer?

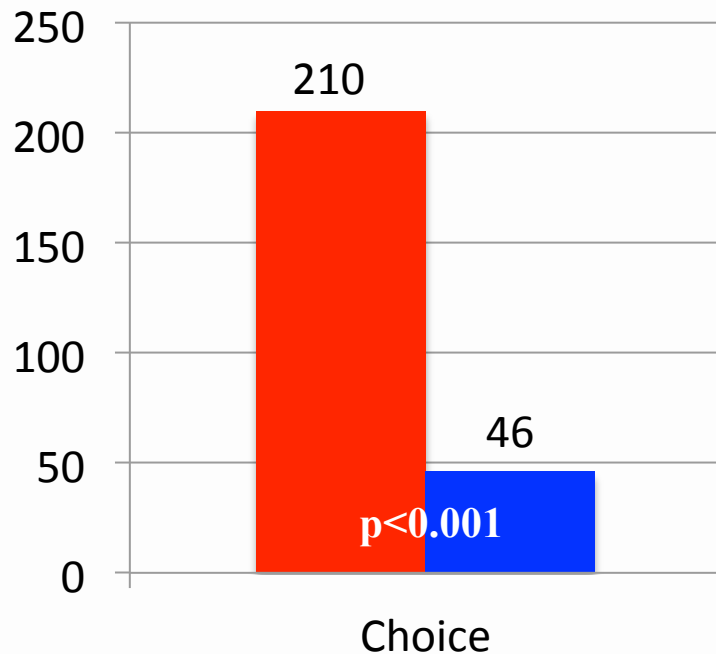


- Learning a new task requires not only practice, but also reflection.
- Both practice and reflection are costly and have opportunity costs.
- **Individuals have a preference for practice. But this preference does not seem to be well-informed**

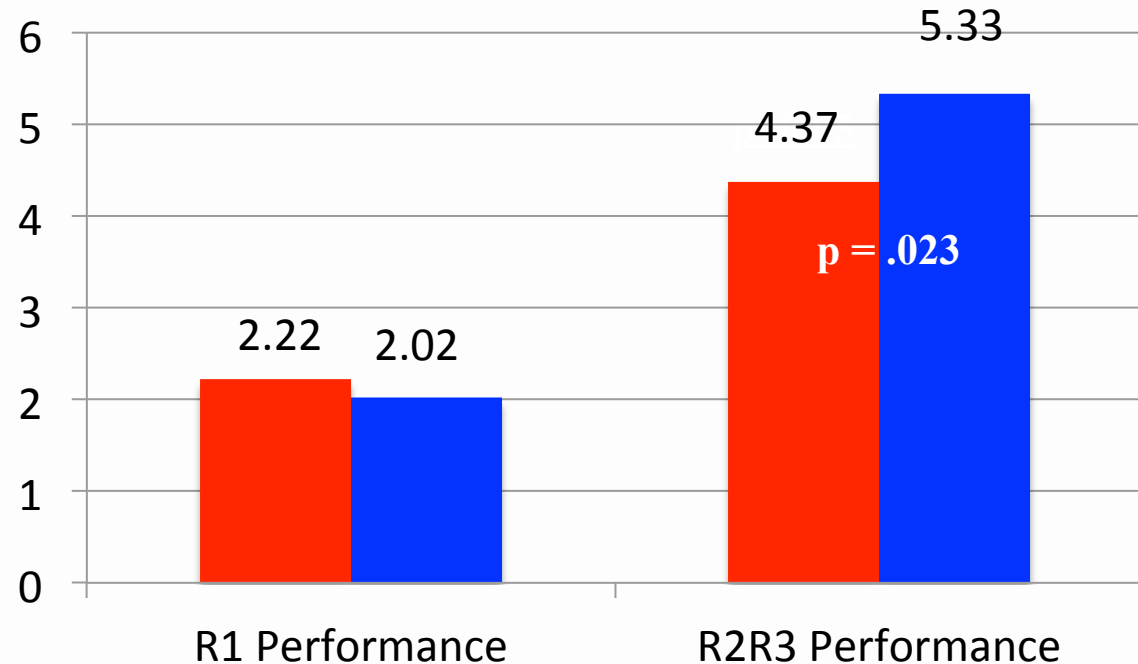
Study 3: Results



Practice Reflection

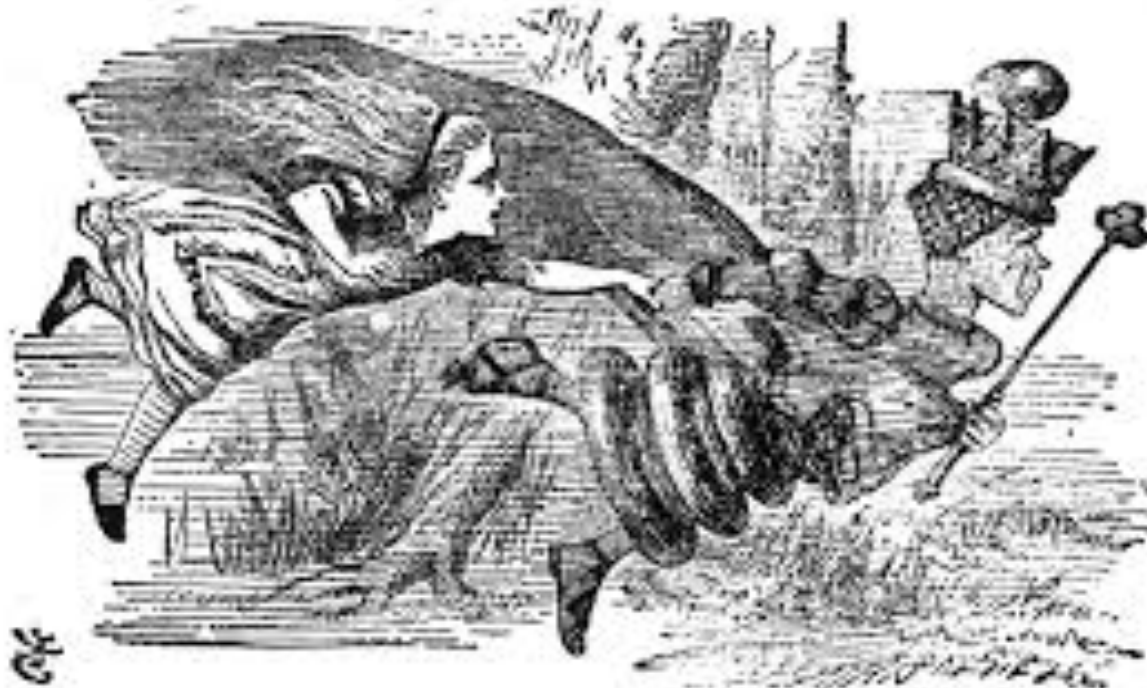


Practice Reflection



Conclusion:

Don't avoid thinking by being busy



“It takes all the running you can do, to keep in the same place.” The Red Queen