

# CLOSING THE GAP

BETWEEN HUMAN PERFORMANCE AND TECHNOLOGY CAPABILITY

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# CHANGING FACE OF WAR



## Pre-Industrial



## Industrial



## Nuclear



## Contemporary



Technology Interface

Mass Maneuver

Individual Action

Cognitive Workload

Individual flexibility, adaptability, efficiency & effectiveness = Flexible, adaptable, efficient & effective learning



# COGNITIVE CHALLENGES

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area9  
LYCEUM



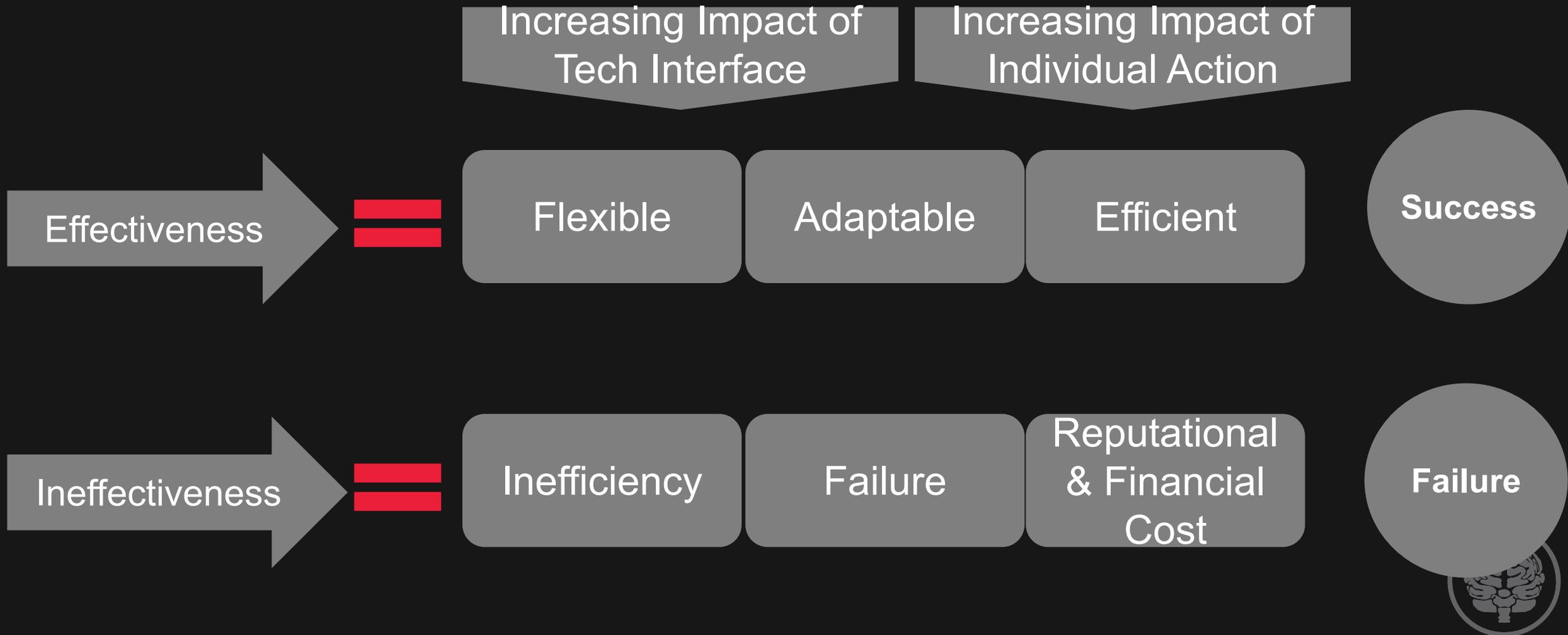


# NEW AREAS OF HIGH COGNITIVE LEARNING IN THE MILITARY

- ISR
- TAC
- UAV Operators
- Intelligence Analysts
- Cyber
- Force protection (especially medical first and second aid)



# DRIVERS OF THE LEARNING CHALLENGE





# WHAT IS ADAPTIVE LEARNING?

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Adaptive learning, like much in L&D, is not well defined.  
It is used to describe two different things:

## **Adaptive Curricula**

What topics/courses/  
competencies are  
relevant to you?

## **Adaptive Instruction**

How can we help you  
learn?



# WHAT IS ADAPTIVE LEARNING?

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Or, to use an analogy:

## **Adaptive Curricula**

Where do you want go?

## **Adaptive Instruction**

What's the best way to  
get there?

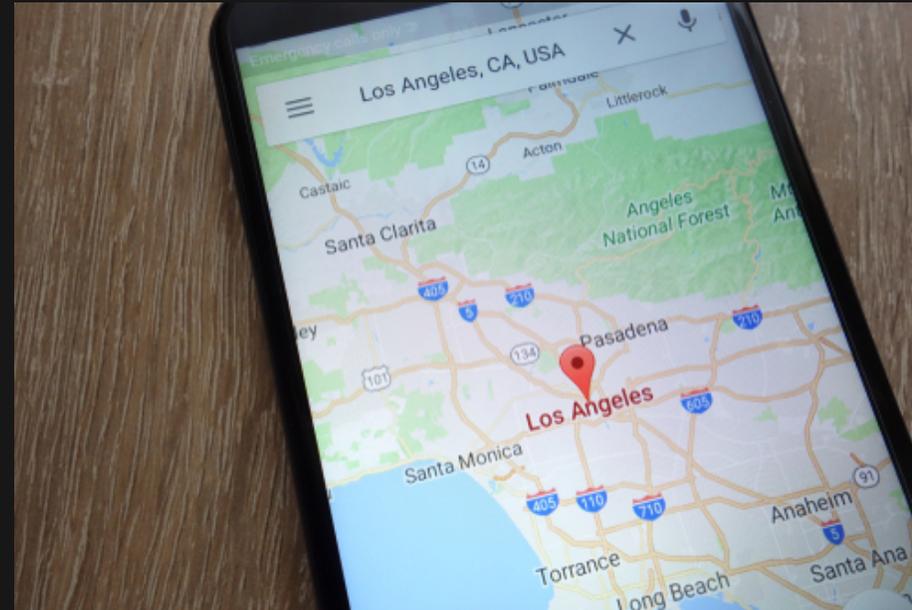




# HOW TO GET THERE



**Traditional e-Learning**



**Adaptive Learning**



# AUTOMATICITY

area9



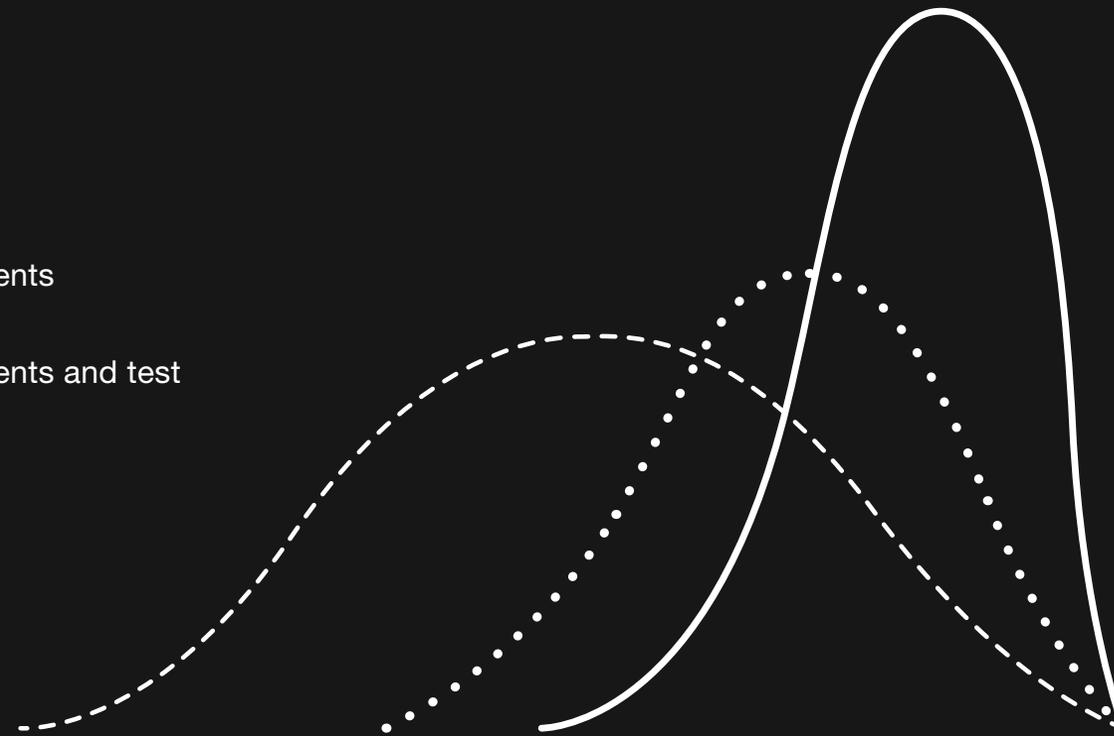
Automaticity is the ability to do things without occupying the mind with the low-level details required, allowing it to become an automatic response pattern or habit. It is usually the result of learning, repetition, and practice.





## BLOOM'S 2-SIGMA PROBLEM

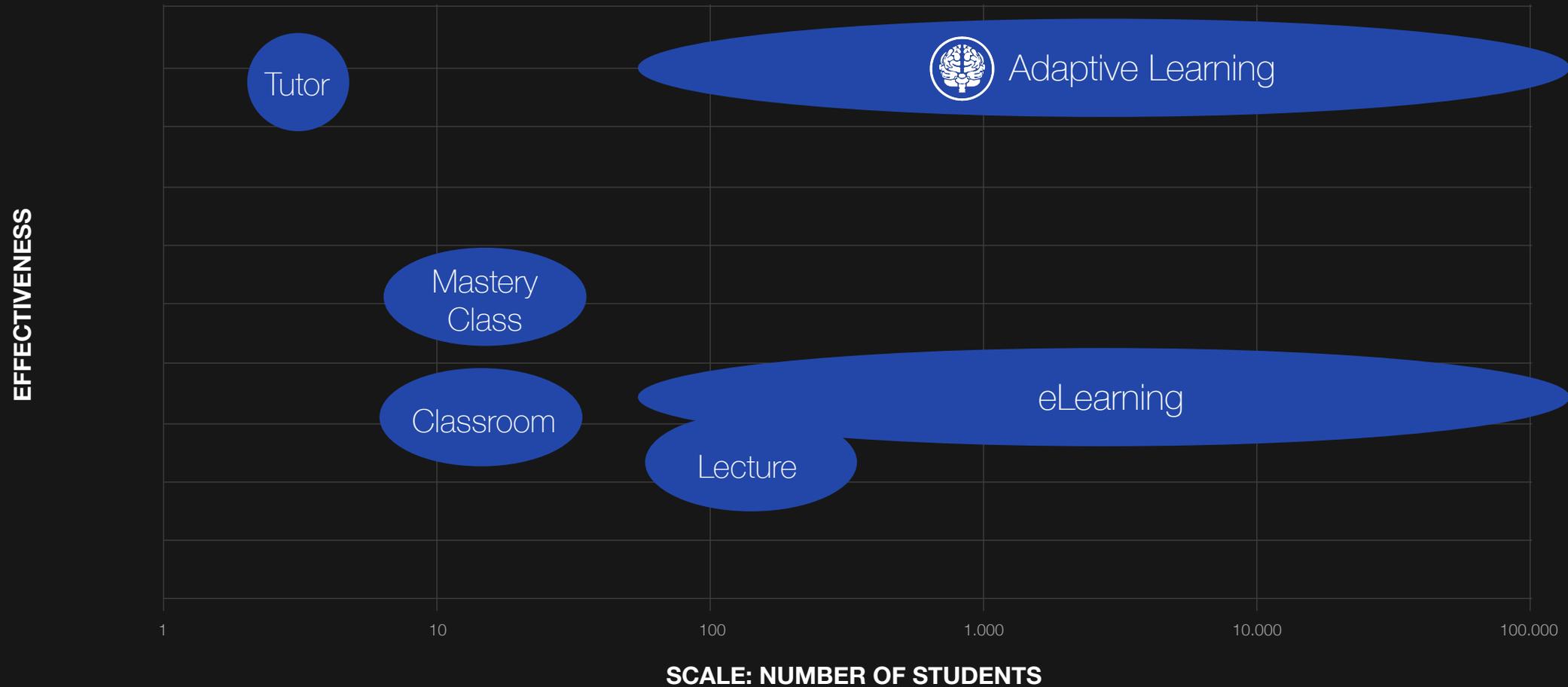
- - - Class teaching with many students
- Class teaching with many students and test
- ~ Personal guidance



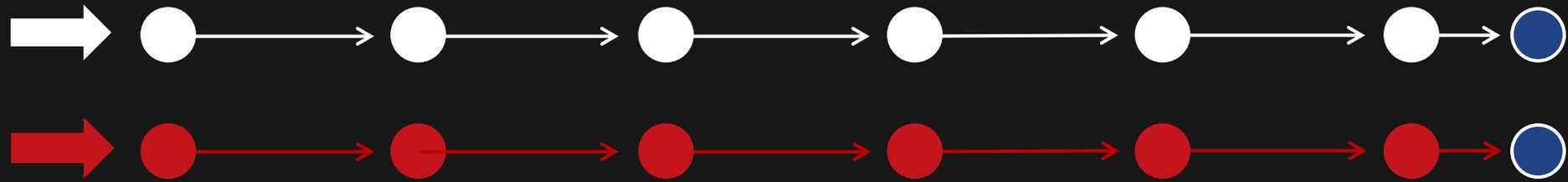
SUMMATIVE PERFORMANCE RESULTS



# WHY ADAPTIVE?

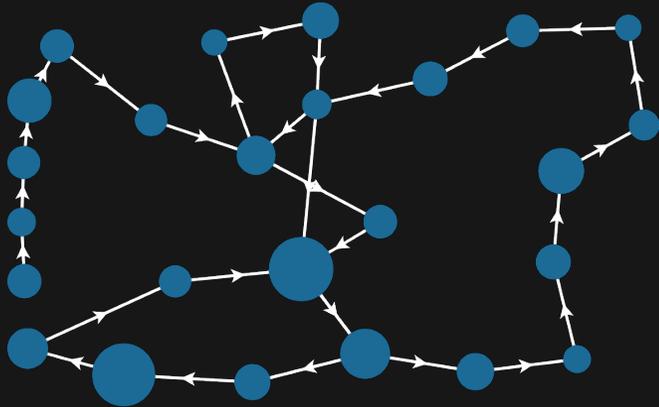


# Traditional Teaching



# UNIQUE PATHS TO PROFICIENCY

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## Learner 1

100% proficient

8m 25s

88% correct

9% consciously incompetent

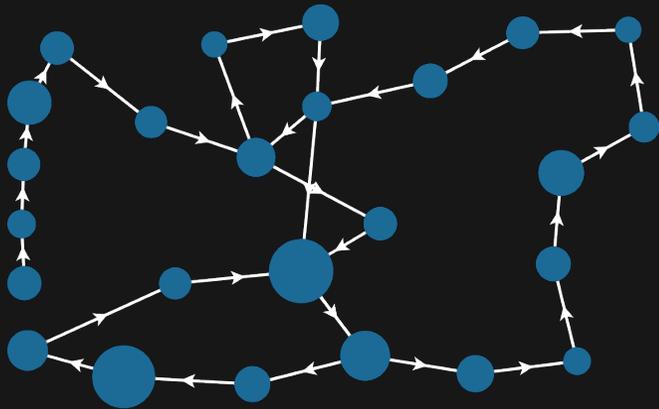
3% unconsciously incompetent

Data from Feb 2019 from telecommunications company, technical training course





# UNIQUE PATHS TO PROFICIENCY



## Learner 1

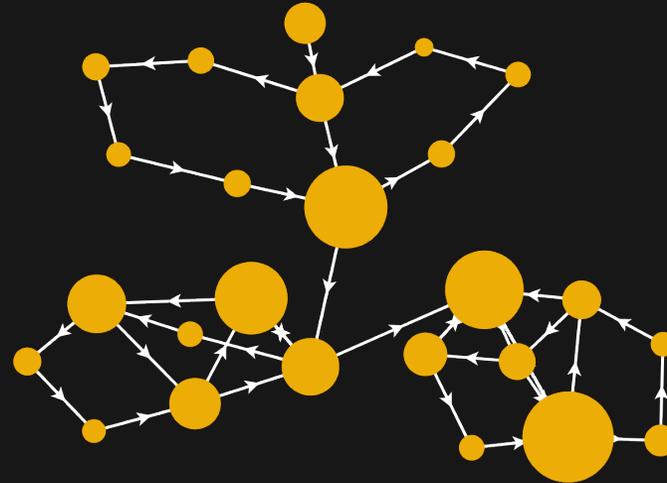
100% proficient

8m 25s

88% correct

9% consciously incompetent

3% unconsciously incompetent



## Learner 2

100% proficient

19m 39s

52% correct

7% consciously incompetent

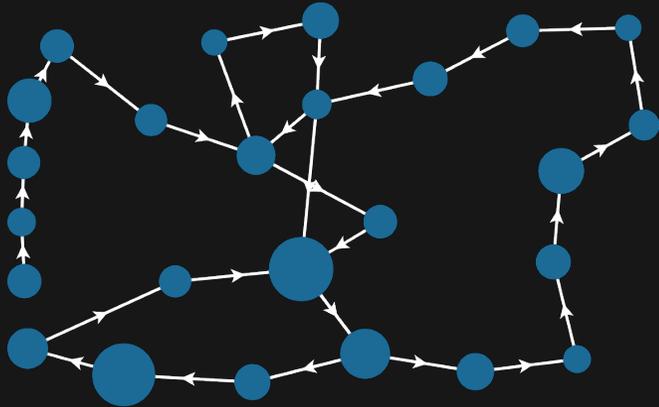
41% unconsciously incompetent

Data from Feb 2019 from telecommunications company, technical training course





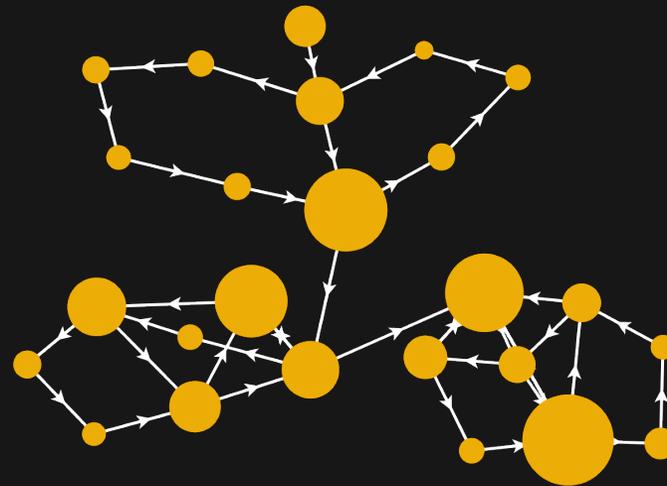
# UNIQUE PATHS TO PROFICIENCY



## Learner 1

100% proficient  
8m 25s

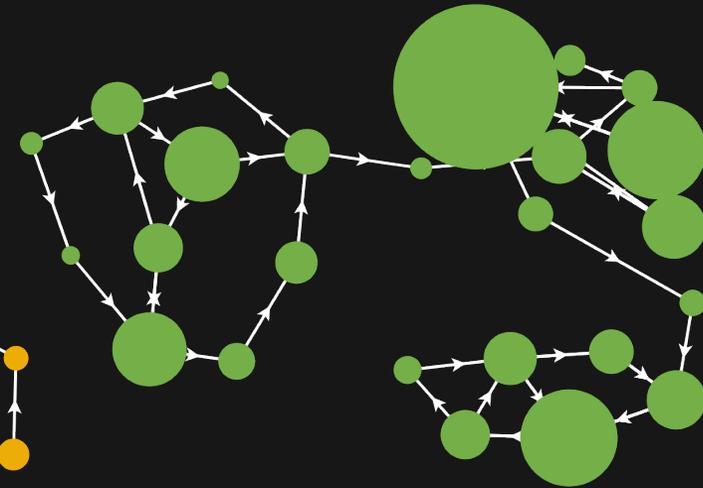
88% correct  
9% consciously incompetent  
3% unconsciously incompetent



## Learner 2

100% proficient  
19m 39s

52% correct  
7% consciously incompetent  
41% unconsciously incompetent



## Learner 3

100% proficient  
33m 40s

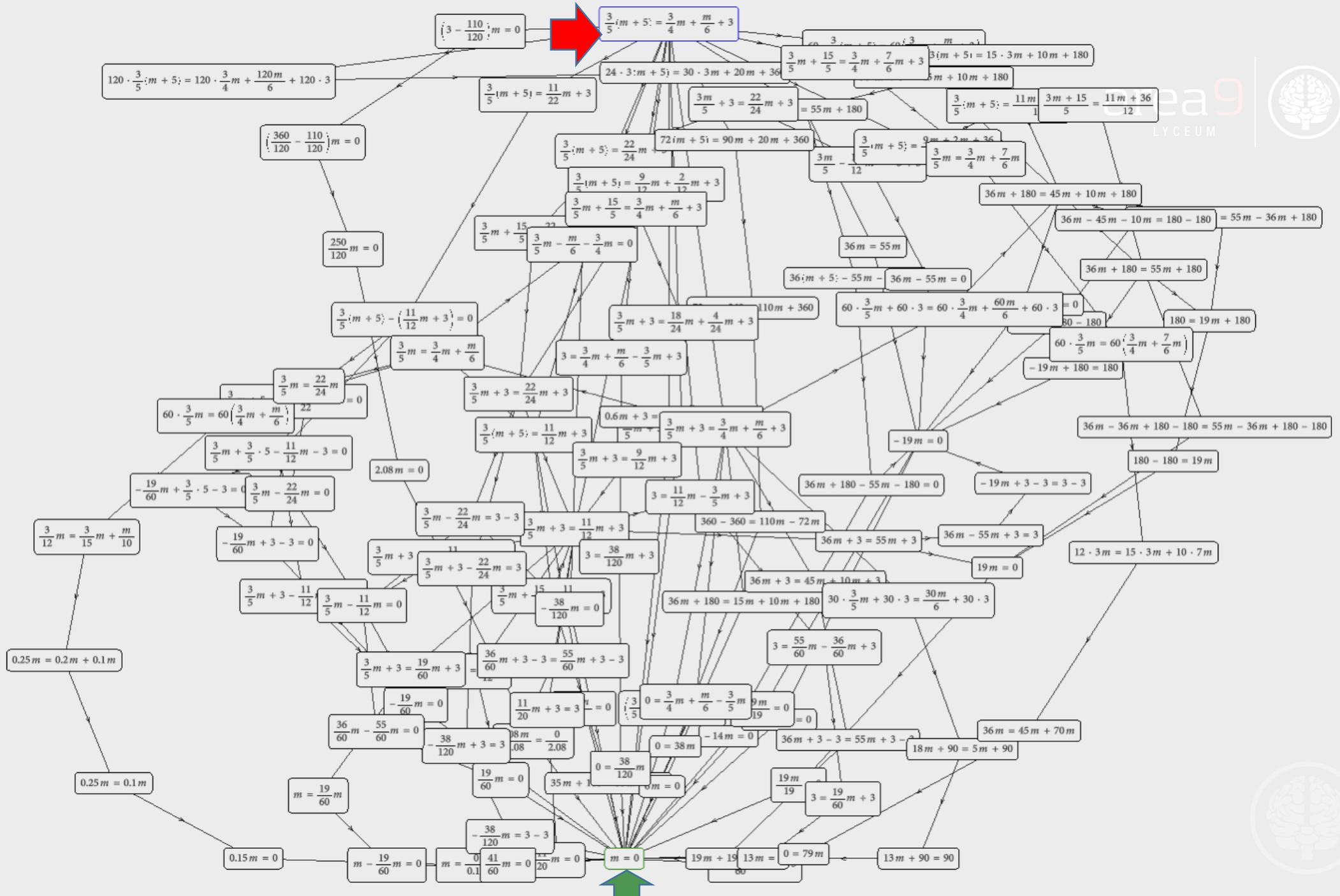
47% correct  
29% consciously incompetent  
24% unconsciously incompetent

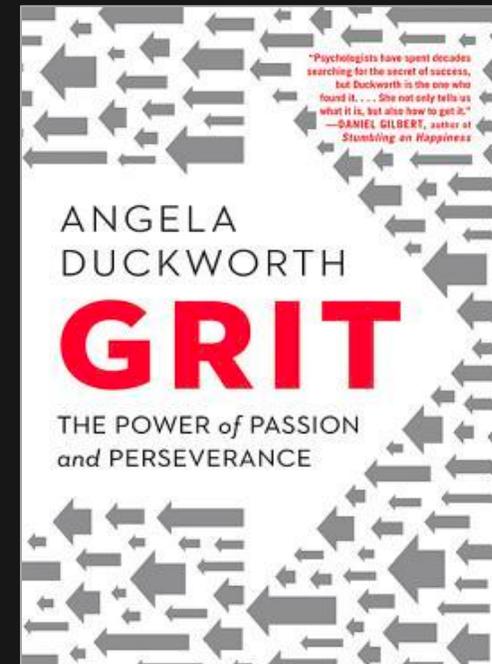
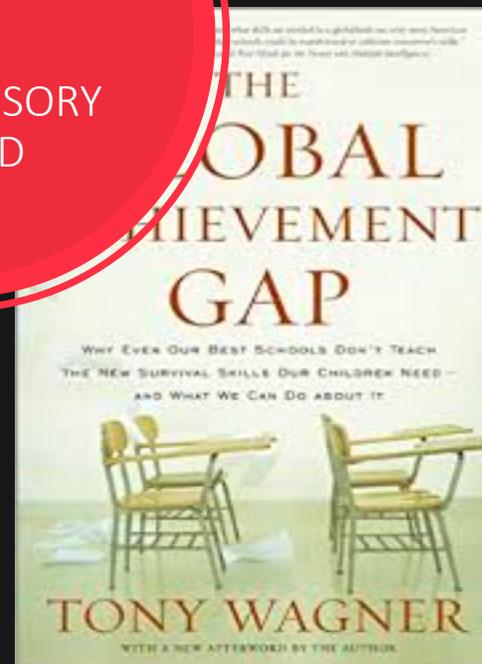
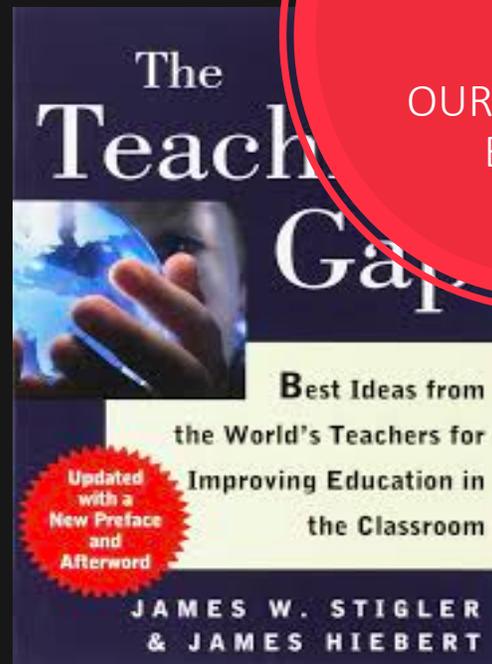
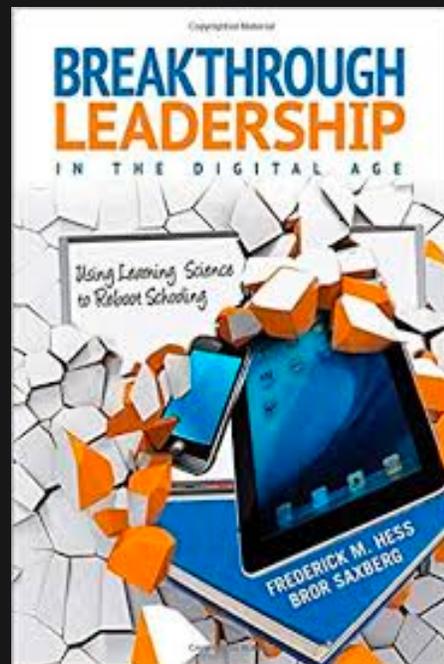
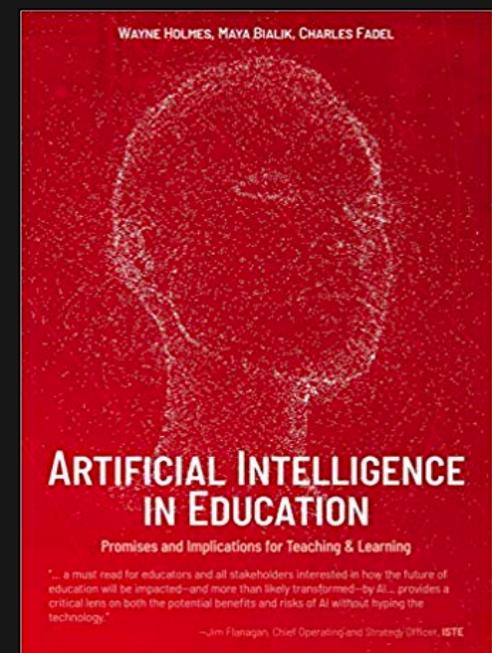
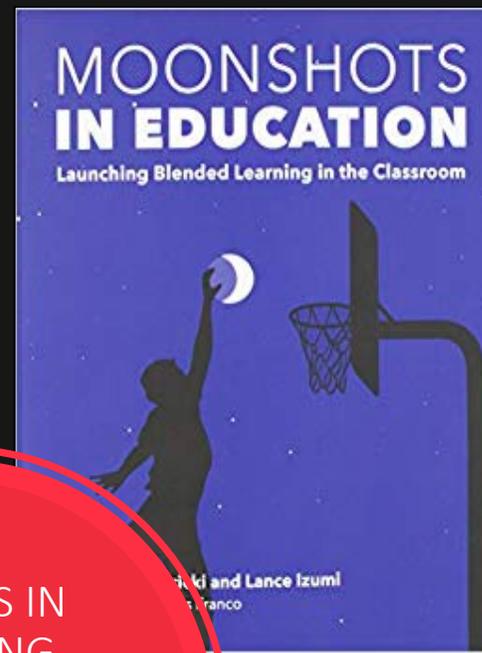
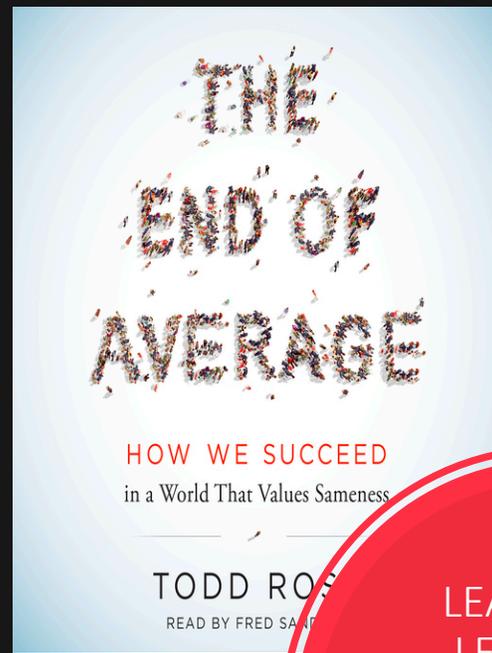
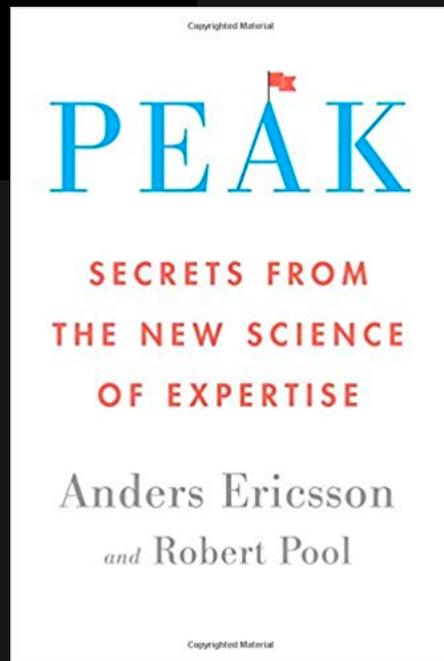


There are many different paths to the solution (green)

Real life case (problem =red): 800 American students

The systems allows the students to take different paths, noting is pre-defined

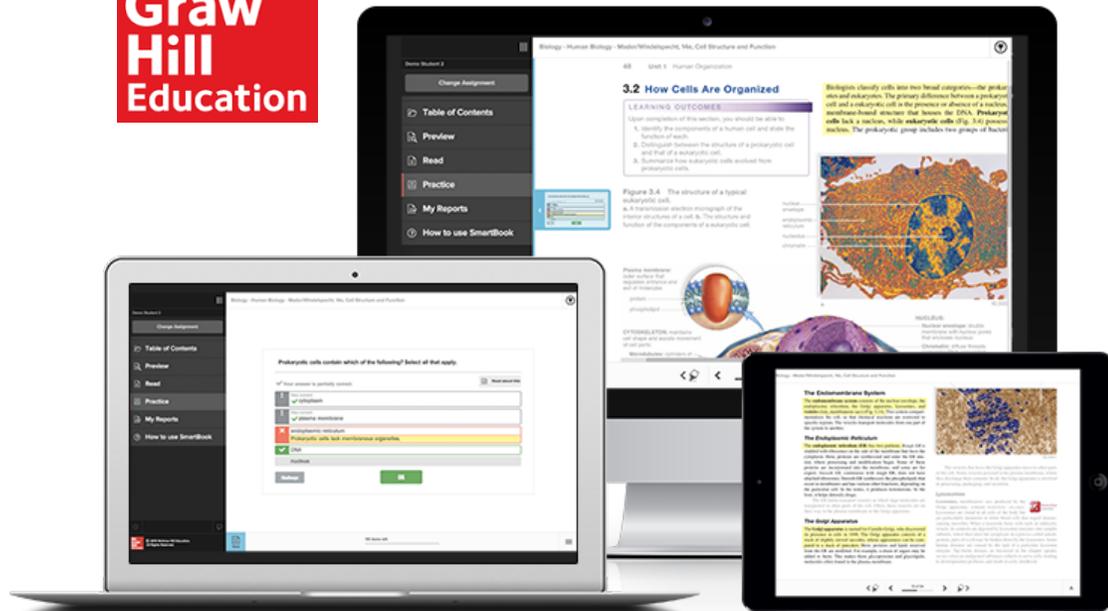




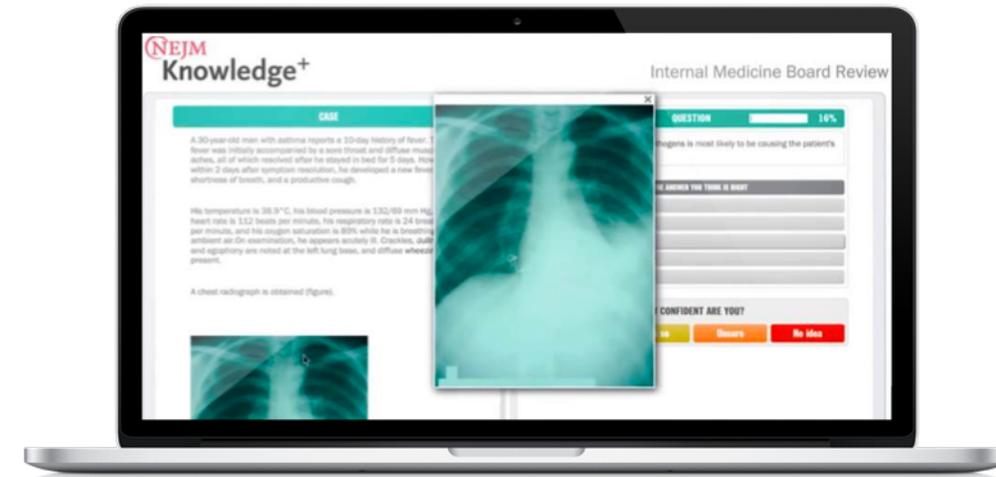
# THE EVOLUTION OF ADAPTIVE LEARNING



## SMARTBOOK®



## NEJM Knowledge+



Over **20 years of research** in human factors, learning science and computer science  
Has powered the learning of over **20m students** in over **2,000 products**, that have collected  
**billions of learning data-points**



My Rhapsode Dashboard

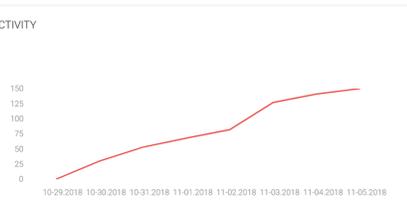
Classes: 6 Active, 1 Inactive | Learners: 32 Active, 13 Inactive, 29 Invited | Analytics: 2 Risks, 4 Reports | Reviews: 9 To Do, 2 Late | Community: 1 Messages, 3 Chats

My Rhapsode Reports

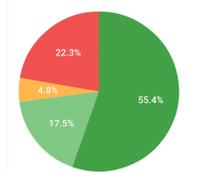
PROGRESS

Learner	Parrotfish	Basics of adaptiv...	Basics of learnin...	Learning engine...	Learning engine...	Learning engine...
Aak Nørdestgaard	100%	81%	88%	73%	--	--
Christian Motzfeldt	86%	53%	76%	58%	58%	71%
Elisabeth Juul Ellervik	34%	41%	50%	18%	28%	--
Gajen Kandiah	6%	21%	77%	50%	100%	82%
Greta Zöhner	5%	18%	10%	14%	21%	30%
Jakob Christensen	86%	100%	81%	100%	89%	100%
John Michael	18%	45%	22%	14%	54%	30%
Juliane Elander	5%	5%	5%	--	--	--
Katrine Pihl-Andersen	13%	21%	45%	73%	62%	34%
Mads Raemussen	16%	12%	21%	10%	34%	22%
Magdalena Hillmer	100%	100%	100%	87%	100%	100%
Marisa Batley	20%	34%	50%	82%	95%	100%

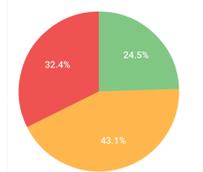
ACTIVITY



METACOGNITION



AT RISK



My Skills: Analyze data by extracting useful bits of information

Skill Mastery Progress

Assessed by Educator, Peers or your Self-review.

SELF PEER EDU

NOT RATED EXPOSURE ONLY LIMITED PRACTICE MODERATELY SKILLED MASTERED

Feedback

Laura Williams

EXPOSURE ONLY Today, 12:09 pm

Not good. You need to focus. Watch the video again.

SHOW PREVIOUS FEEDBACK

SHOW PROGRESS TIMELINE

TYPEN MIGRANTEN

Waar zou een controle van de vluchtelingenstroom naar Europa het meest effectief zijn?



CHOOSE THE ANSWER

Oostenrijkse zuidgrens

Duitse zuidgrens

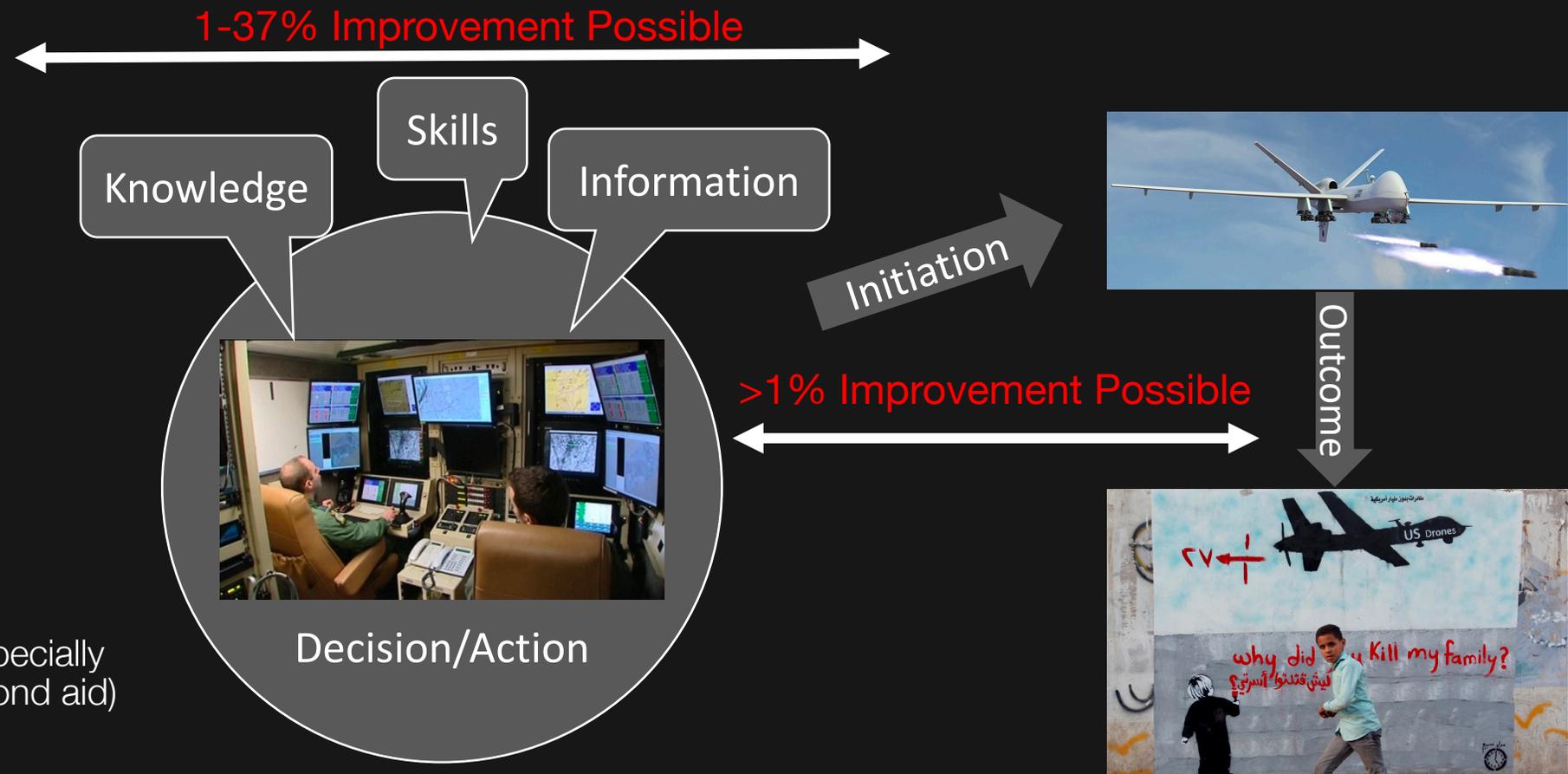
Griekse oostgrens

Turkse westgrens

I KNOW IT THINK SO NOT SURE NO IDEA

# HOW AREA9 LYCEUM CAPABILITY ADDRESSES DEFENSE AND SECURITY CHALLENGES

- ISR
- TAC
- UAV Operators
- Intelligence Analysts
- Cyber
- Force protection (especially medical first and second aid)



# SUMMARY & CONCLUSIONS

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## WHAT IS ADAPTIVE LEARNING?

- An online delivery method that **automatically adjusts to the needs of each learner.**
- Recreates at scale the **optimal teaching approach of a one-on-one personal tutor.**
- Uses proven data analytics and intelligent technologies to **adjust in real-time** to deliver an optimal experience.



# SUMMARY & CONCLUSIONS

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## OUTCOMES

- Compared to traditional online or classroom training:
  - **Cuts training time in half**
  - Creates higher **proficiency**
- Uncovers and fixes **unconscious incompetence**
- Reduces **boredom and frustration**
- **Improves Accuracy and Consistency of Outcomes**
  - **Especially in High Cognitive Situations**

Delivers Forces  
that are:

Flexible

Adaptable

Efficient



  
**ITEC**  
14-16 May 2019  
Stockholmsmässan, Sweden



Thank you

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Multiple Award Winning Technology

