

# QAGTC Conference

*Theme: Critical & Creative Thinking*

**25<sup>th</sup> May, 2024**

## Enhancing Critical Thinking Skills by Developing Study Skills

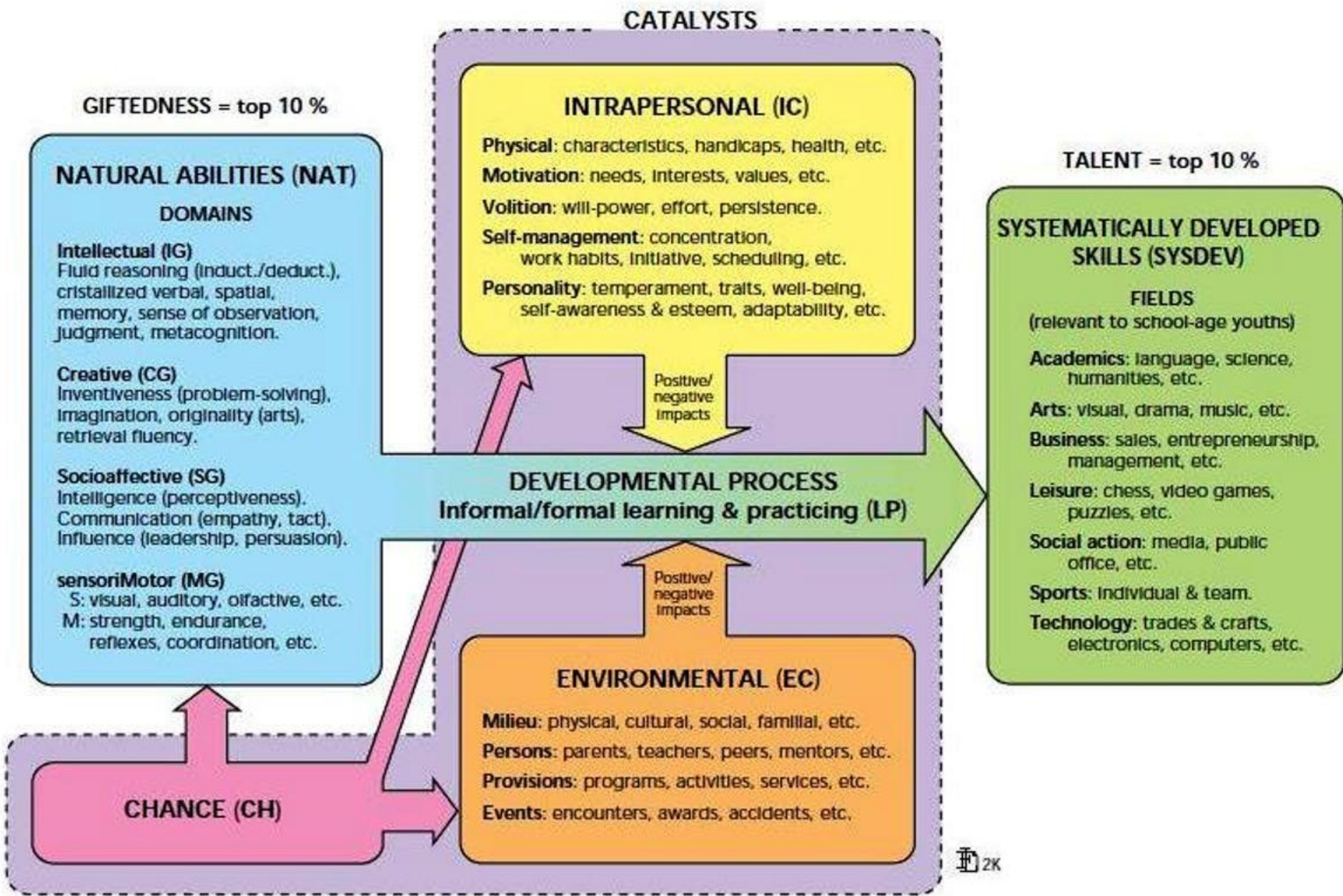
***Michele Juratowitch***



*“ ... I don't remember learning to think, write and argue, but that must be because you encouraged me to do those things as a natural part of life rather than as dedicated chores. ... ”*

A student's comment to parents





Gagne's Differentiated Model of Giftedness and Talent (DMGT.EN.2K)

# Help students understand WHY they should develop study skills

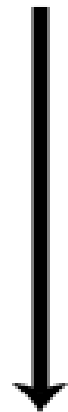
- a. Teach gifted students about long-term risks.
- b. Explain neuroscience to gifted students.
- c. Use study skills to develop an understanding of critical thinking.
- d. Support students to try different approaches.
- e. Be patient while students are experimenting.
- f. Help students develop skills that suit them.
- g. Encourage students to identify what works for them.
- h. Don't expect that what worked for you will work for them.

**Grades**

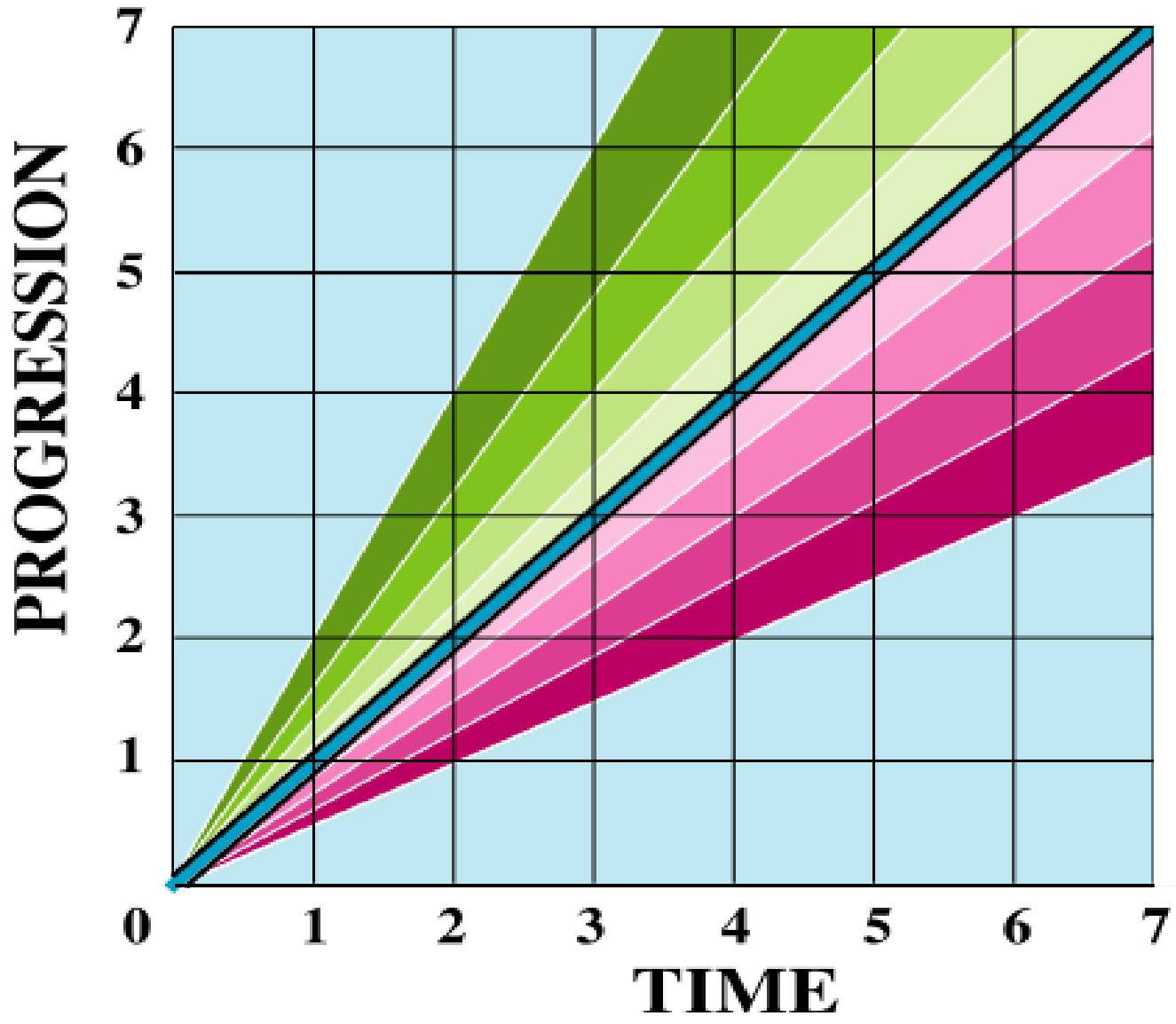
**FAST**



**AVERAGE**



**SLOW**

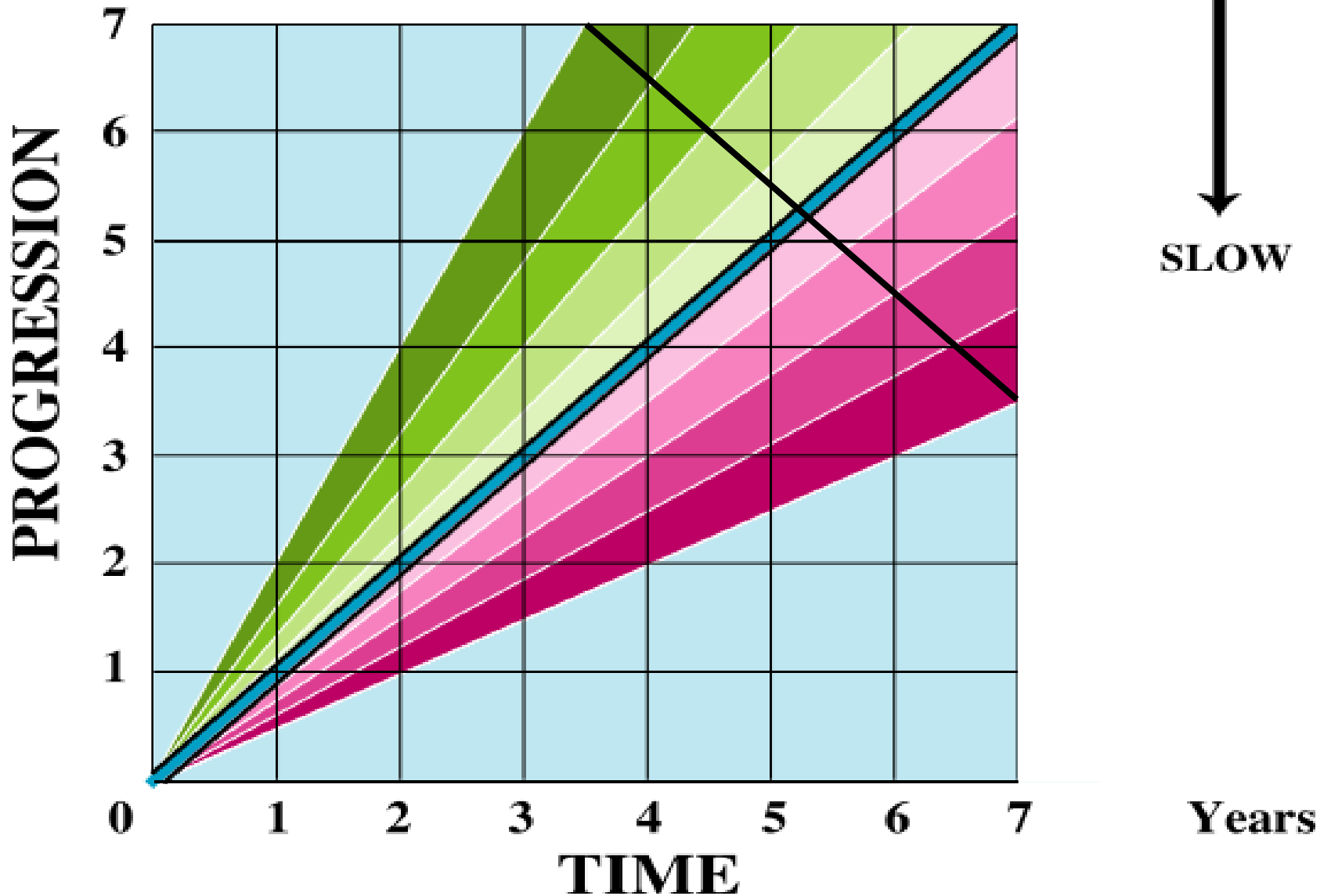


**Years**

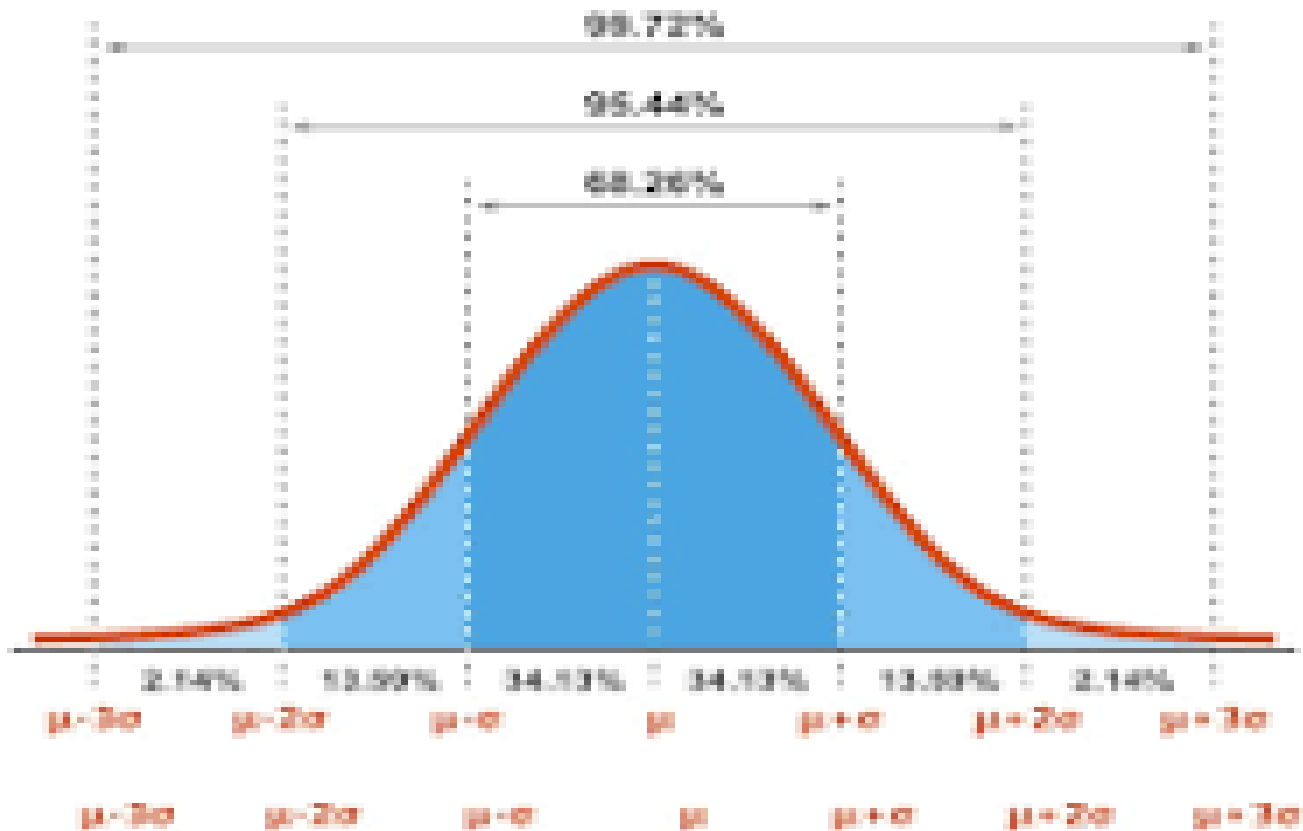
**Grades**

**FAST** ← ————— → **AVERAGE**

**What happens if we do a Cross Section?**



# Bell Curve forms the Cross Section of the 'Fan' of Learning.







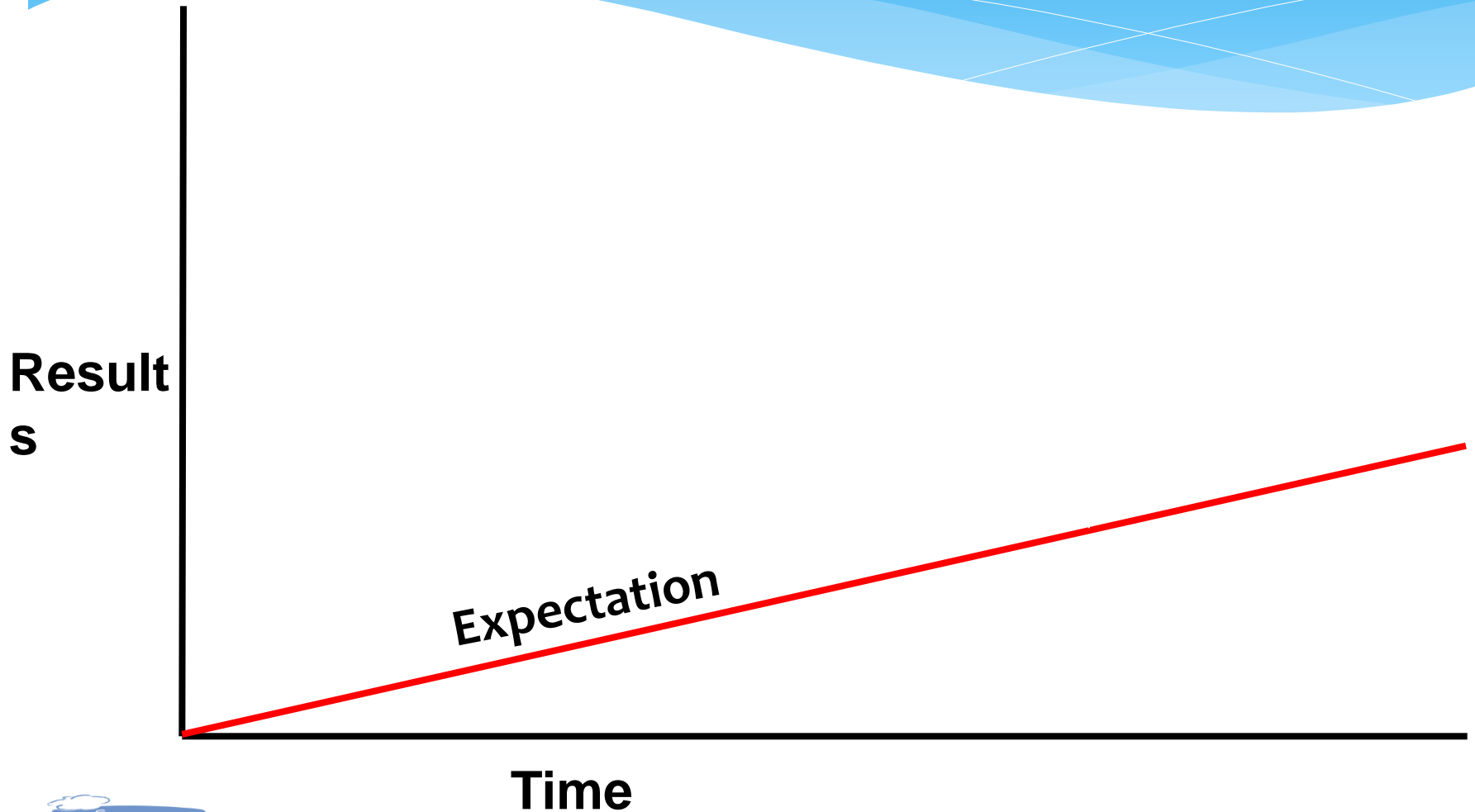
% of the population



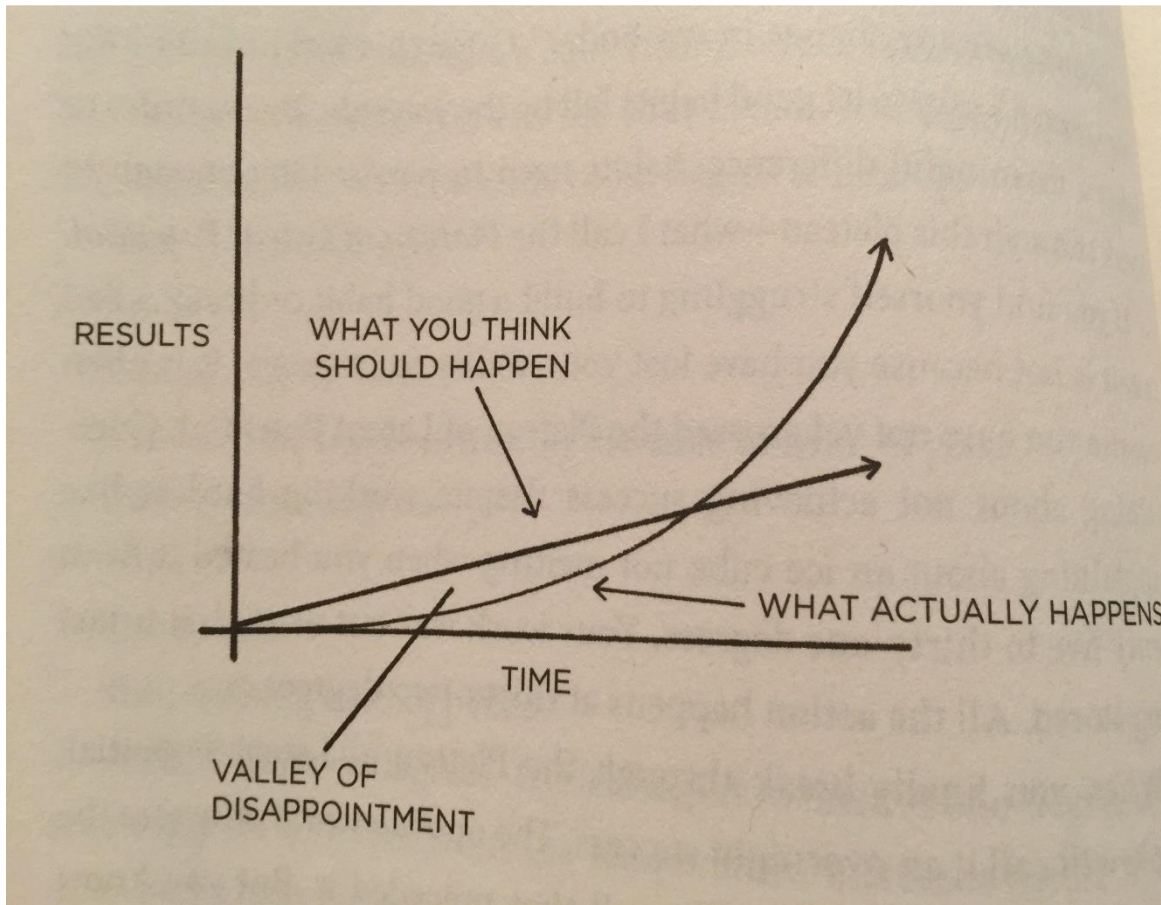
Clearing Skies



# Expectation ... Versus Reality



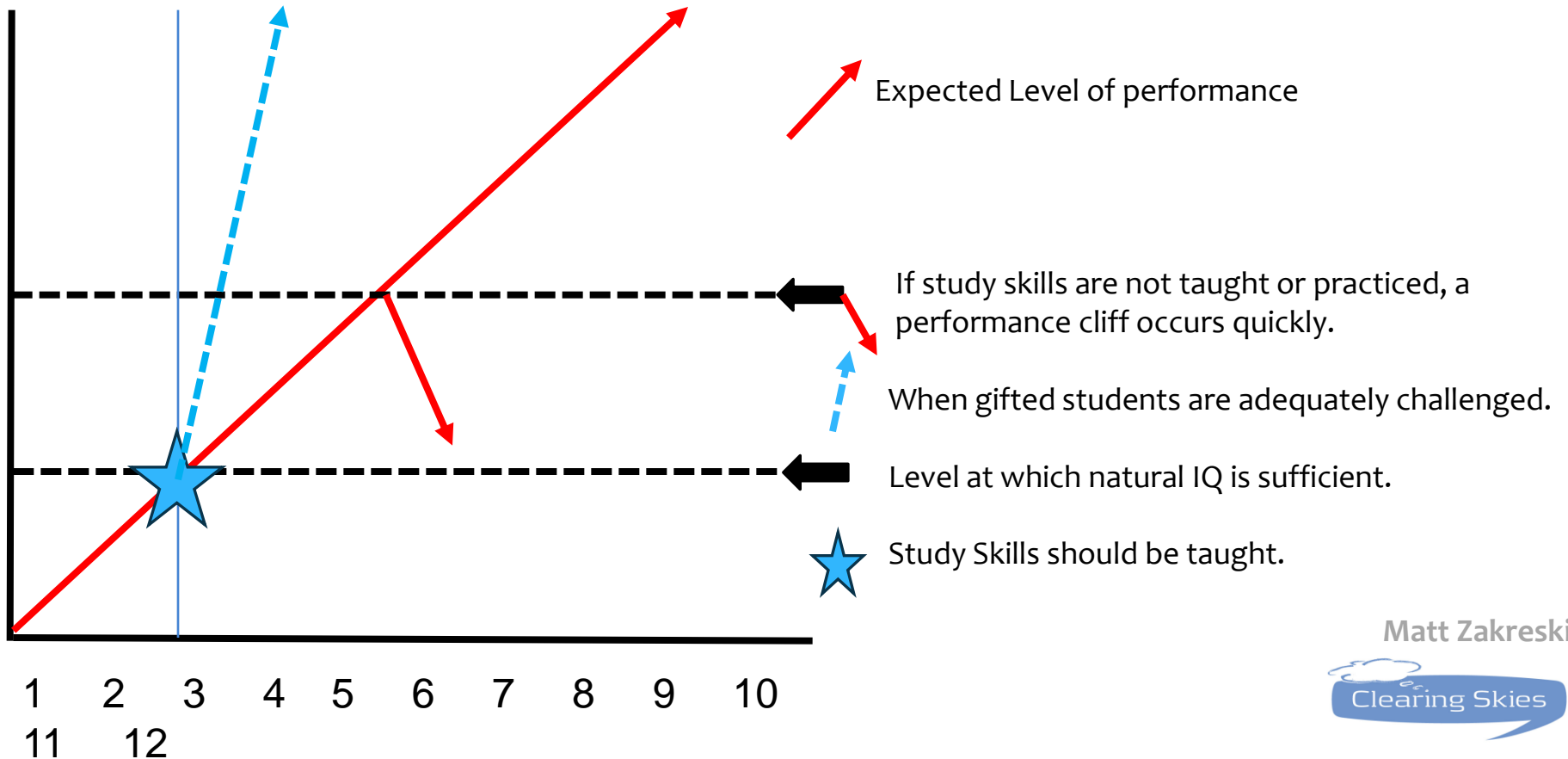
# Aim to get 1% better each day



# Performance Cliff

Clinical psychologist, Matthew Zakreski, spoke about the 'performance cliff' that many high ability students encounter. He referred to high ability students who achieved well early in their academic career when their natural cognitive ability and rapid rate of learning is sufficient for them to achieve. A 'performance cliff' occurs, when high-ability students fail to perform according to their ability.

# Performance Cliff



Matt Zakreski

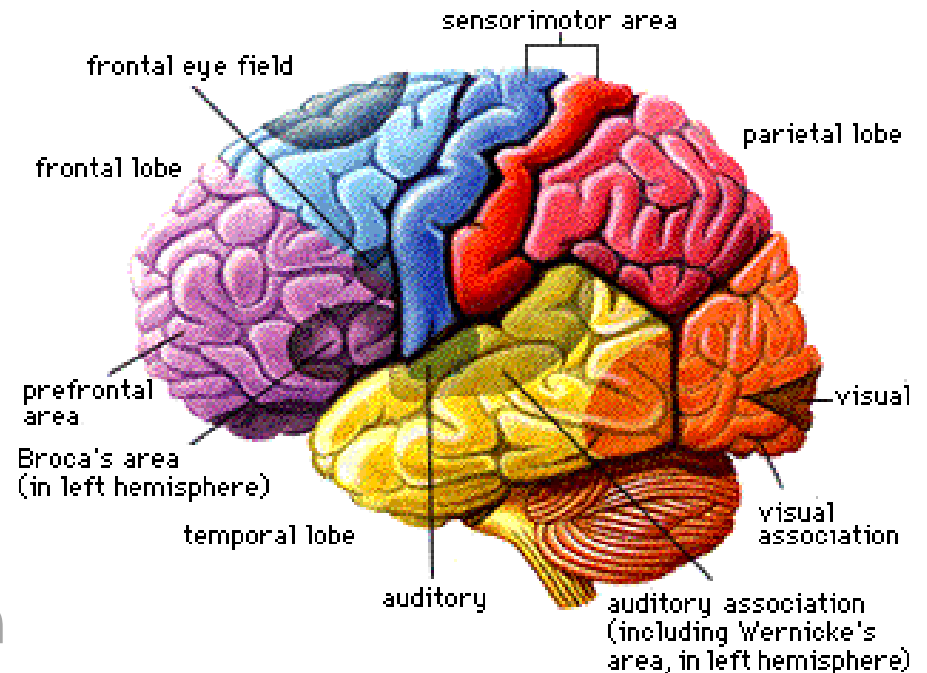
# Underachievement

When a 'Performance cliff' is encountered, gifted students must quickly acquire study skills or risk academically underachieving and fail to attain important personal, academic or career goals.

# Habit Formation

*“We first make our habits and then our habits make us.”*

John Dryden



# Extensive Blood Supply

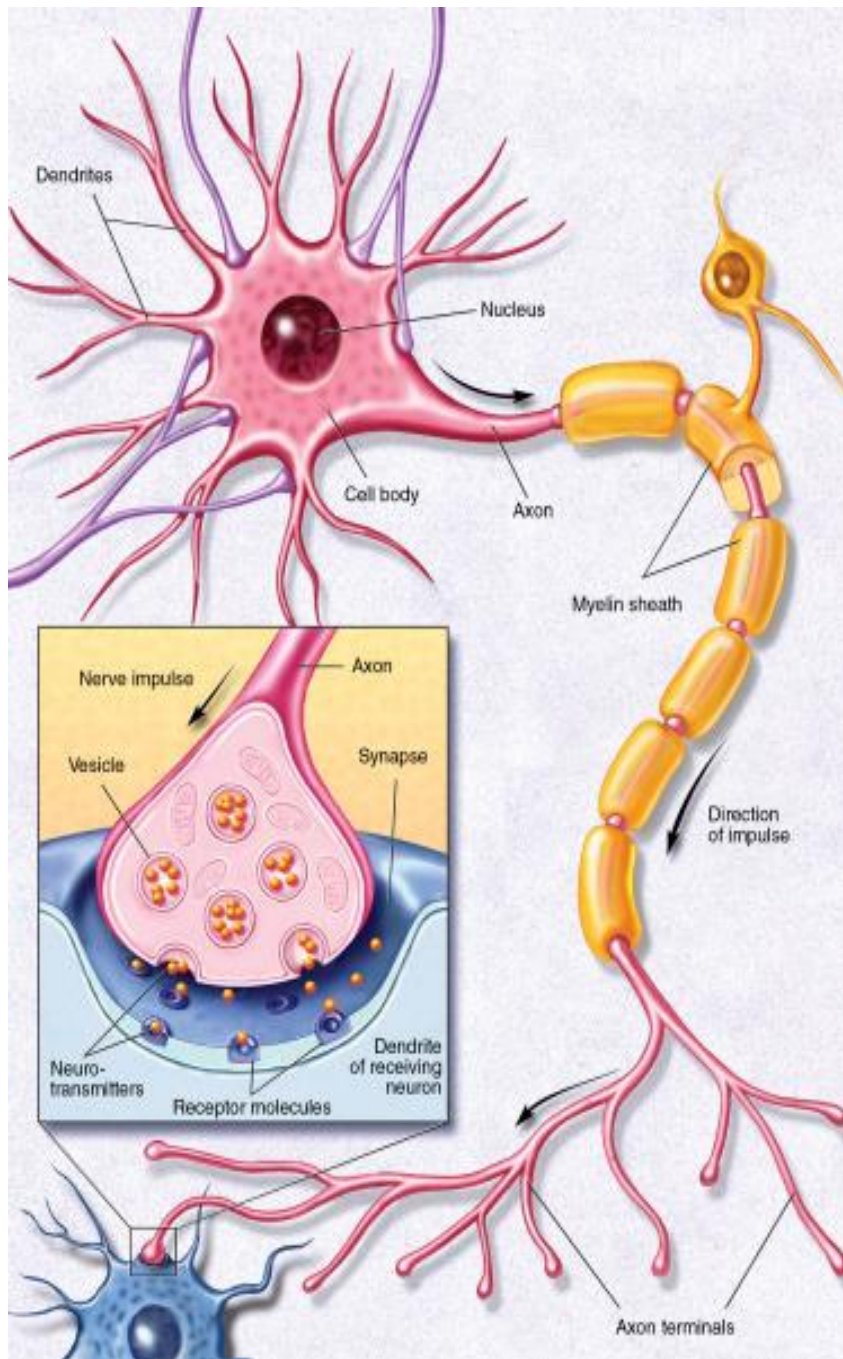


The human brain is extraordinarily 'hungry'.

It is 2% of the size of the body mass but uses approximately 20% of the body's energy, provided through an extensive blood supply.



# Automaticity: Neural Pathways



... are formed when a tiny electrical current or nerve impulse relays a message from the nucleus of a brain cell, along the axon, and across the synaptic gap via neurotransmitters that are collected by the dendrite of the receiving neuron and passed on to another neuron in the same way. Repeated transmission patterns form neural pathways.

# Effort = Results

- Many students conclude that smart means easy and challenge becomes terrifying.
- They should be encouraged to take risks and understand that “intelligence does not equal effortlessness”.



# Students need opportunities to 's..t..r..e..t..c..h'



We need to ensure that students are not only engaged but also have opportunities to be 'stretched' intellectually and academically.

# Personal Best

Individuals who are focused on doing their best (task involved) experience less internal negative pressure than ego-involved students who tend to focus on being the best.

Self-esteem is higher in task-involved students than in their ego-involved age-peers.

# Identify Prior Learning

David Gonski & Geoff Masters have proposed restructuring the curriculum into proficiency levels, enabling teachers to identify students' prior learning while determining “prerequisite knowledge or skills” that students require to progress to the next level of proficiency and attain academic success.

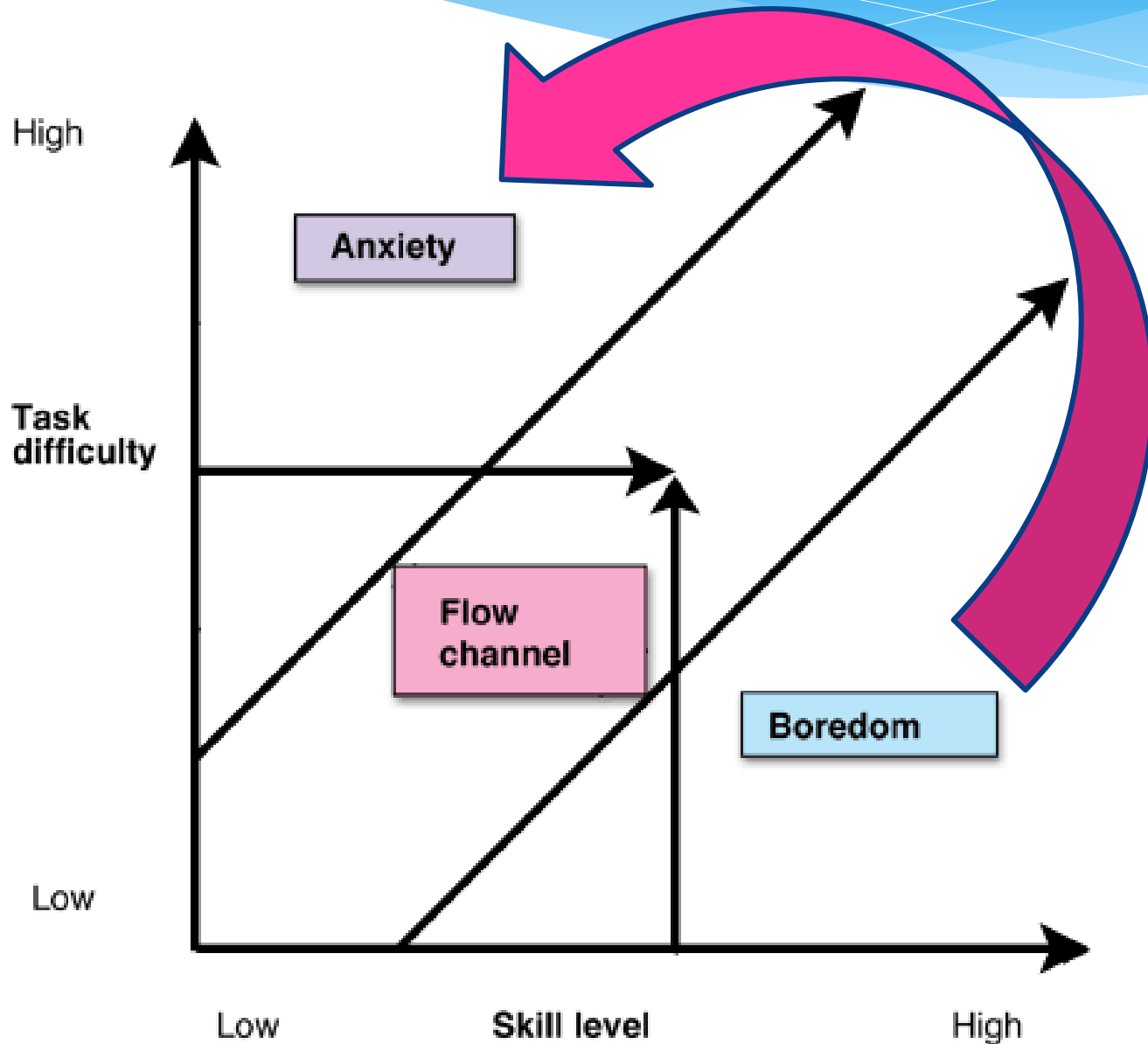
## **Pre-testing**

It consists in assessing systematically the knowledge already mastered about parts of the year's academic program not yet taught.

## **Off-level testing**

It consists in assessing the degree of academic advance by administering achievement tests designed for higher grade levels.

# Csikszentmihalyi's Flow Channel



# 'Flow'



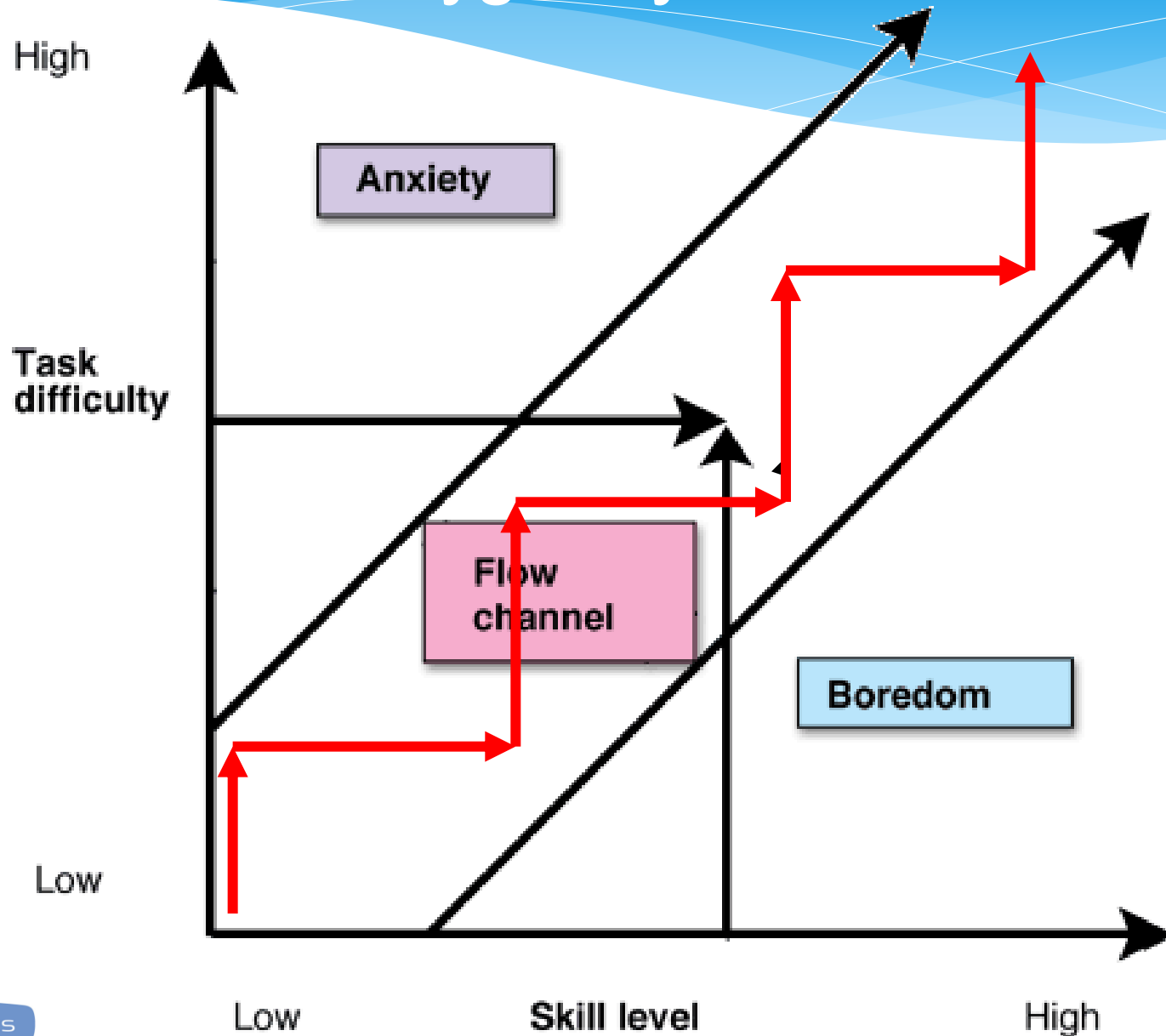
*“Flow cannot be achieved without frustration. Success after success, unbroken by failure, regrouping, and trying again will not produce flow.*

*The cushioning of frustration, the premature alleviation of anxiety and learning to avoid the highest challenges all impede flow. A life without anxiety, frustration, competition, and challenge is not the good life; it is devoid of flow.”*

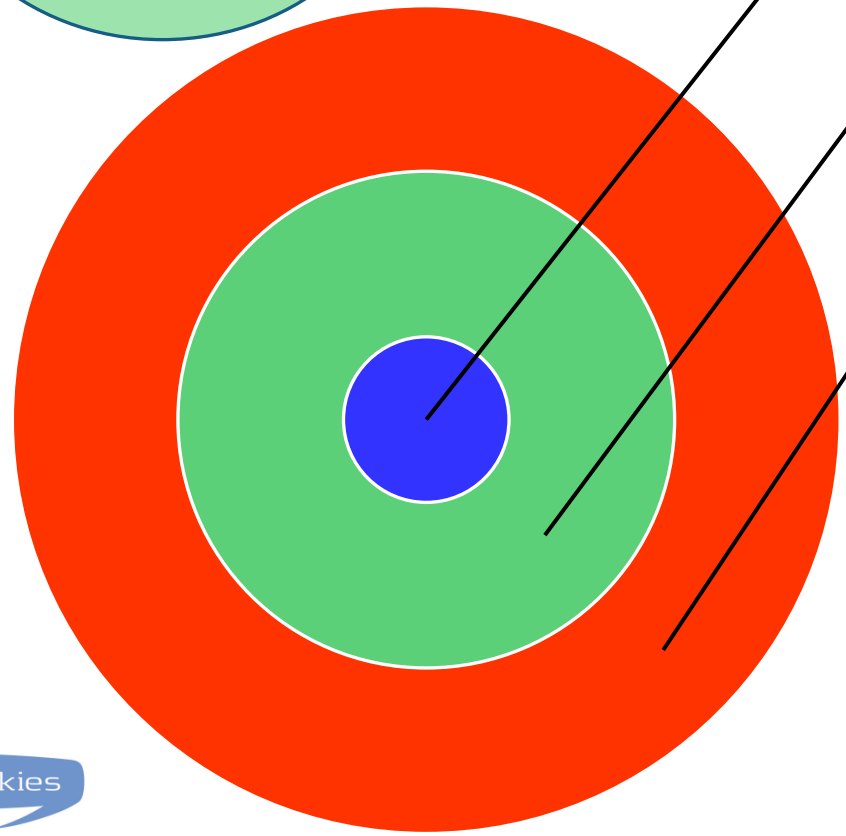
Martin Seligman  
*The Optimistic Child*



# Lev Vygotsky's ZPD



We work best in our Stretch Zone.



**Comfort Zone**

**Stretch Zone**

**Panic Zone**

*“Armies of ... teachers and parents are straining to bolster children’s self esteem. That sounds innocuous enough, but the way they do it often erodes children’s sense of worth. By emphasising how a child feels, at the expense of what a child does – mastery, persistence, overcoming frustration ... and meeting a challenge – parents and teachers are making children more vulnerable to depression.”*

Martin Seligman, 2014

**It is important to develop confidence in one's academic capability or self-efficacy – which occurs as a by-product of academic success.**



# Atomic Habits

*“All big things come from small beginnings. The seed of every habit is a single, tiny decision. But as that decision is repeated, a habit sprouts and grows stronger...”*

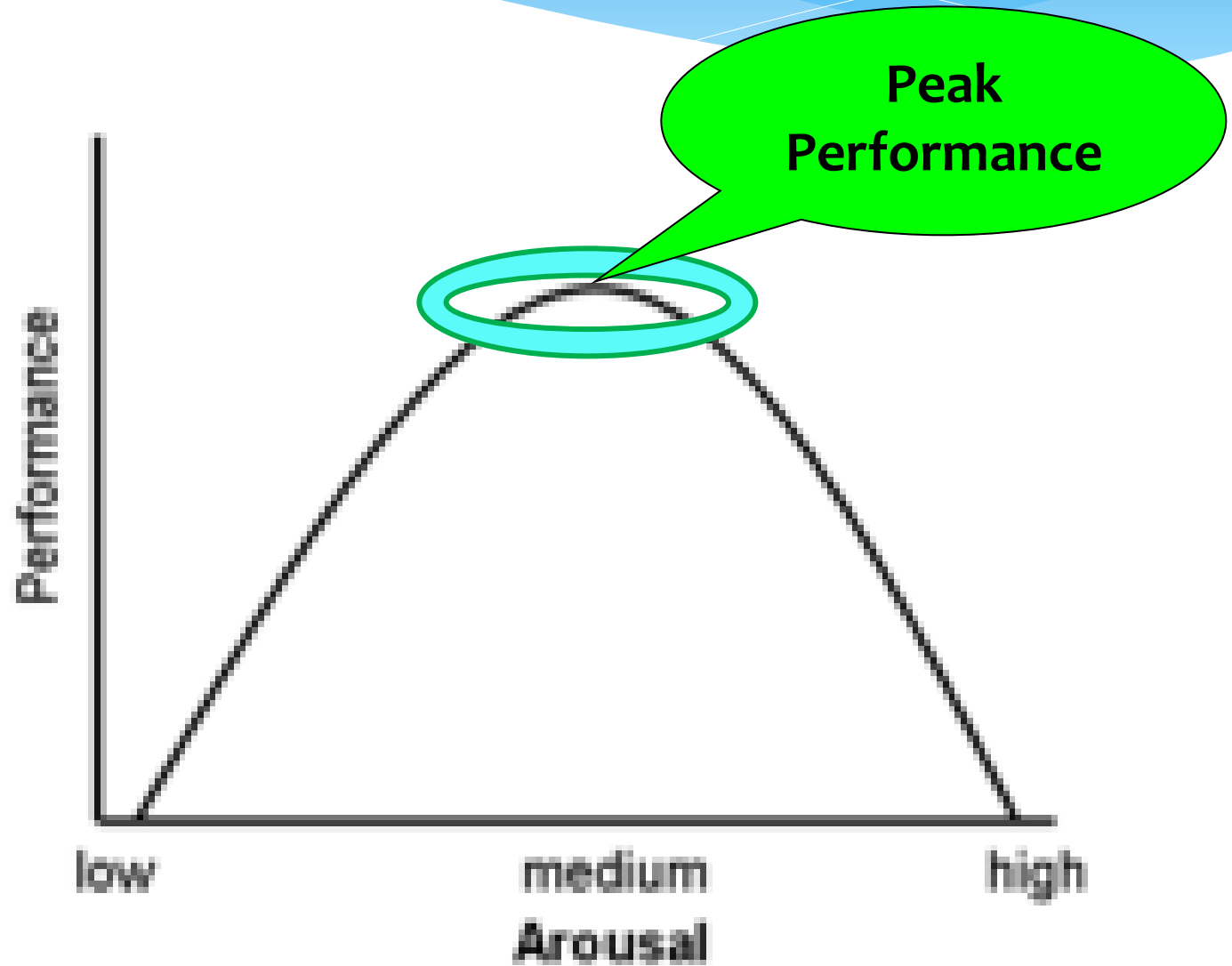
James Clear



# Provide Opportunities to Debate

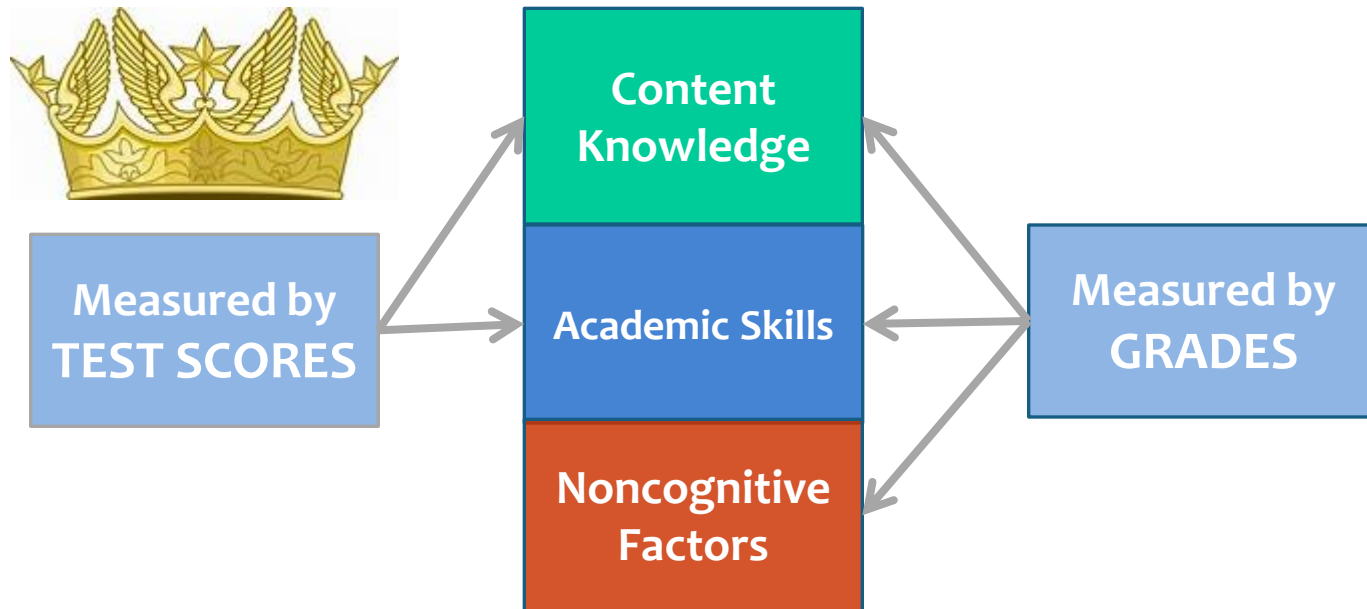
- ❖ Useful for assignments, answering exam questions & for oral presentations.
- ❖ It is important to prove with facts everything that is claimed
- ❖ A beneficial debating dictum to remember:
  - ❖ Tell them what you're going to tell them (**INTRODUCTION**)
  - ❖ Tell them point by point (**BODY OF THE ISSUE**)
  - ❖ Tell them what you've told them (**CONCLUSION**)

# Yerkes-Dodson's Law





# Factors Measured by Test Scores versus Grades



# ‘Non-cognitive’ or ‘Soft’ Skills

are associated with  
“patterns of thought,  
feelings, & behavior” e.g.:

- ❖ Personality
- ❖ Temperament
- ❖ Attitude

Alanna Bjorklund-Young, 2016

to perform higher mental  
processes such as:

- ❖ Reasoning
- ❖ Remembering
- ❖ Understanding
- ❖ Problem solving

Bernstein, D., L. Penner, A. Clarke-  
Sterwart & E. Roy 2007

The development of specific study skills will enhance critical thinking while giving gifted students the opportunity to achieve academically and access the career that they want.



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