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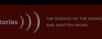
AIM | 03.09.2020 | [@FumikoHoeft](https://twitter.com/FumikoHoeft)
brainLENS.org

Neuroscience of Anxiety, Socio-Emotional & Mental Health in Reading and Learning Disorders

fumiko hoeft md phd

Co-Chair @ Scientific Advisory Board & Annual Conference @ Int'l Dyslexia Assn (IDA)
Professional Advisory Board @ NCLD | Expert @ Understood.org
Professor @ UConn Psychological Sciences | Maths | Psychiatry | Neuroscience | IBACS
Director @ UConn Brain Imaging Research Center (BIRC)
Professor @ UCSF Psychiatry, Weill Inst. for Neurosci. & Dyslexia Cntr.
Co-Director @ Univ CA-Stanford Precision Learning Center (PreCL)
Co-Director @ Haskins Global L² Innovation Hub | Yale | UConn

professor & director

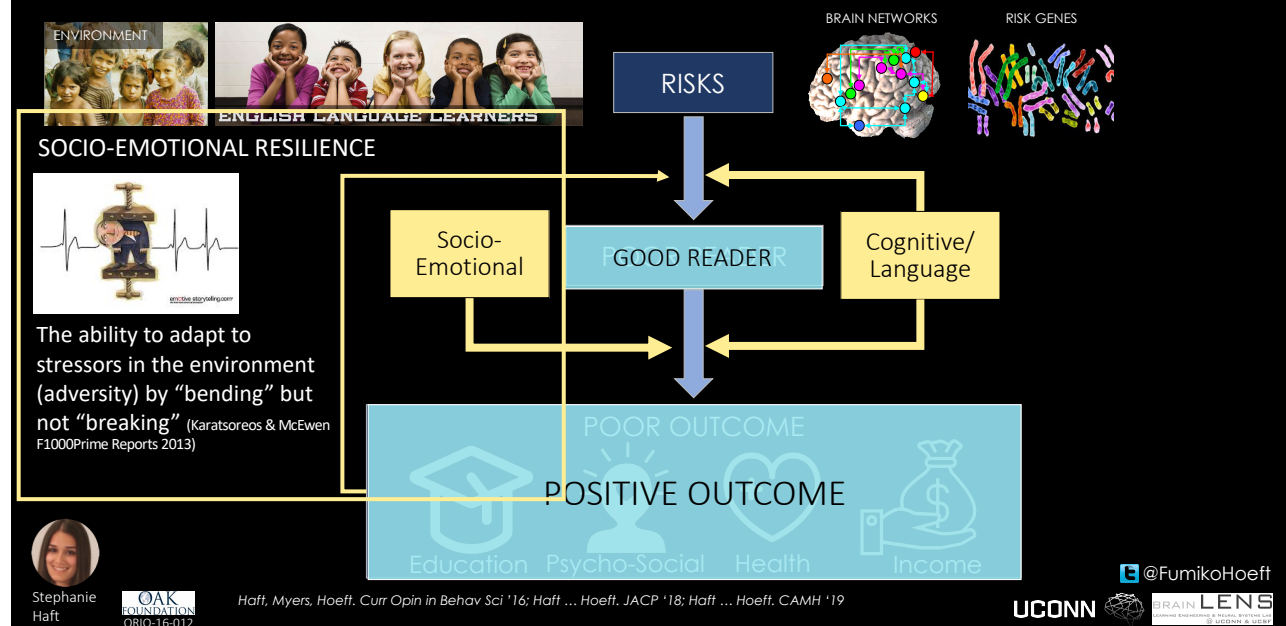


board member, advisor



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Key Factors for Success



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10.04.2019

TEDxUConn
= independently organized TED event

Crushing Our Comfort Zones: Security Blankets, McDonald's & Dyslexia

Fumiko Hoeft MD PhD
 Neuroscientist

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Security blanket: An “on-the-go” comfort zone



Security Blanket Then & Now. UserFriendly.org

35% of adults sleep with stuffy

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Why step out?

- Take risks, experience failure
- Overcome it & be more resilient
- Expand our comfort zone

Key ingredients to success:

- Feeling secure & supported
- In control
- Believe that we can change
- Role model

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Public Speaking

- Most common social fear, 30% (Furmark et al. '99 ; Pull et al. '12)
- Common approach to induce stress & anxiety

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Dyslexia: Neuroscience

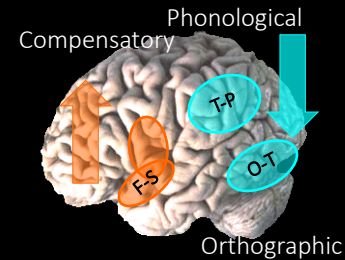
Familial risk: Dozen risk genes, 4-8x increased risk, 1 in 2 to 3 will have dyslexia

Atypicality in Orthography to Phonology pathway: Left occipito-temporal & temporo-parietal regions even in pre-readers & regardless of identification approach & writing system

Protective & compensatory power through COGNITIVE FUNCTION & LANGUAGE: Executive function & learning; Articulation, morphology, semantics & lexical knowledge

BIOLOGICAL RISKS

DYSLEXIA



POOR OUTCOME



Education



Psycho-Social



Health



Income

Hoeft et al. J Neurosci '06, PNAS '07, PNAS '11, Tanaka et al. Psychol Sci '11, Hancock et al. TIME '17, Rueckl et al. PNAS '16, Xia et al. Neuropsychologia '16, Black et al. Neuroimage '12, Hosseini et al. Neuroimage '13, Vandermosten et al. Curr Opin Beh Sci '16, Black et al. LLC '17, Hancock et al. Neurosci Biobehav Rev '17, Patael et al. PLoS ONE '18, Xia et al. LLC '17, Peck et al. IDA Examiner '19

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Dyslexia and Stereotype

BIOLOGICAL RISKS

DYSLEXIA

STEREOTYPE:

INFERIOR
failure, stupid, slow

CHEATING
lazy, needy, taking advantage

➤ Isolation, rejection

Haft... Hoeft. JACP '18
Geiger Brewster. JCP '18

POOR OUTCOME



Education



Psycho-Social



Health



Income

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The Yin Yang of Dyslexia

09.22.2016



General population
5-10%

Entrepreneurs
35%

Julie Logan. Dyslexia 2009

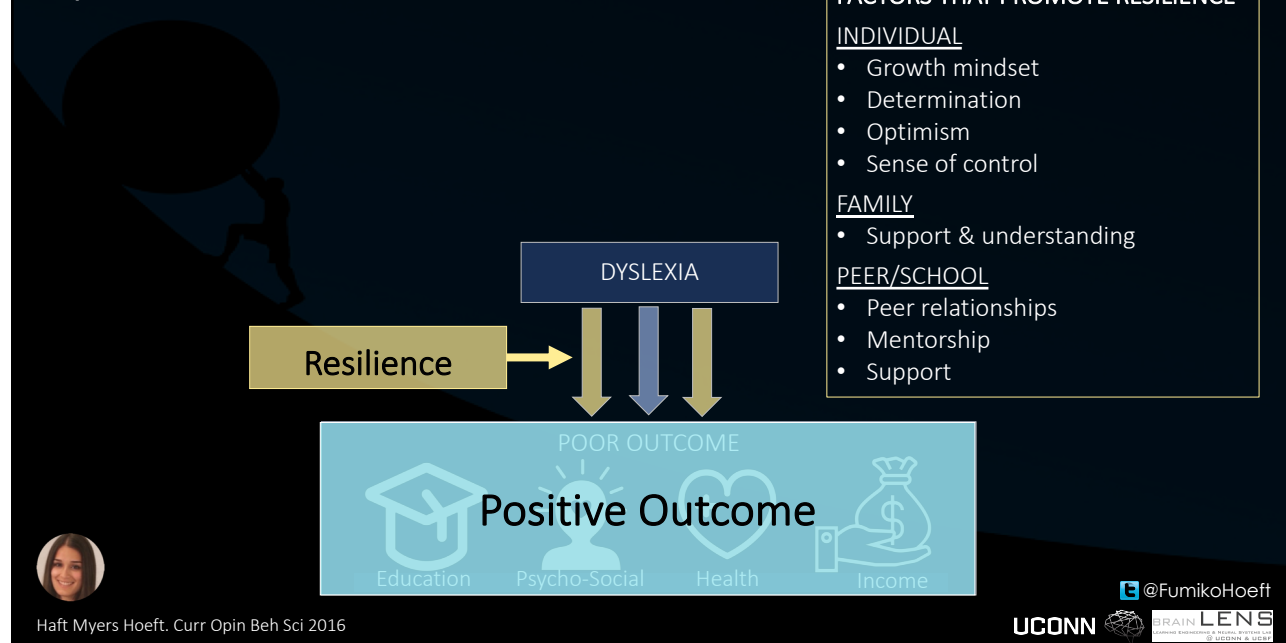
DESPITE not BECAUSE

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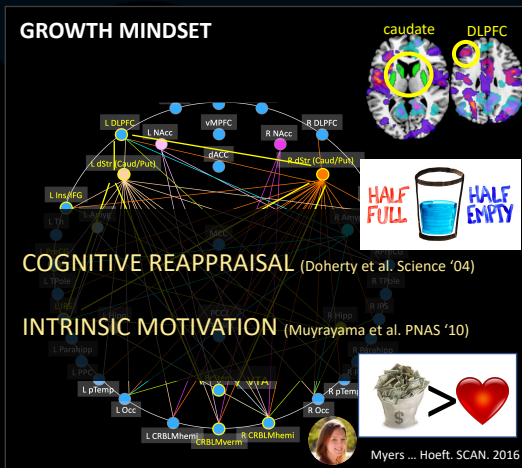
Dyslexia and Resilience



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Dyslexia and Resilience

GROWTH MINDSET



DYSLEXIA

POOR OUTCOME

Positive Outcome

Education Psycho-Social Health Income

FACTORS THAT PROMOTE RESILIENCE

INDIVIDUAL

- Growth mindset
- Determination
- Optimism
- Sense of control

FAMILY

- Support & understanding

PEER/SCHOOL

- Peer relationships
- Mentorship
- Support



Haft Myers Hoeft. Curr Opin Beh Sci 2016

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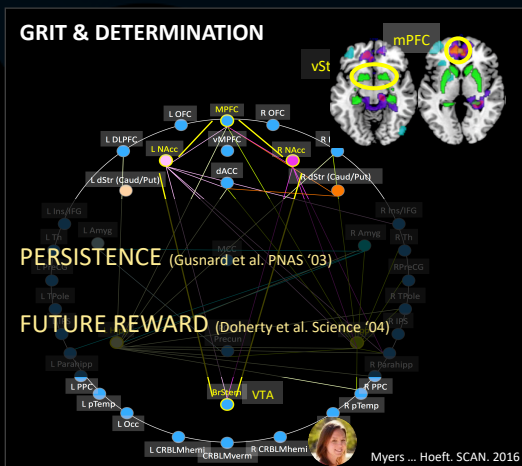
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Dyslexia and Resilience

GRIT & DETERMINATION



DYSLEXIA

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Dyslexia and Resilience

GRIT & DETERMINATION

Self discipline, more predictive than IQ (2x) & above and beyond achievement itself
(Duckworth & Seligman, Psychol Sci '05)

Academic-performance variable	2x Self-discipline	Study 2 (N = 164) IQ
First-marking-period GPA	.66***	.34***
Final GPA	.67***	.32***
Spring achievement test	.43***	.36***
Selection to high school	.56***	.26**
School absences	-.26**	-.07
Homework hours	.35***	-.09
Television hours	-.33***	-.06
Time of day homework is begun	-.26**	.18*

Note. GPA = grade point average.
*p < .05. **p < .01. ***p < .001.



Positive Outcome

Education Psycho-Social Health Income



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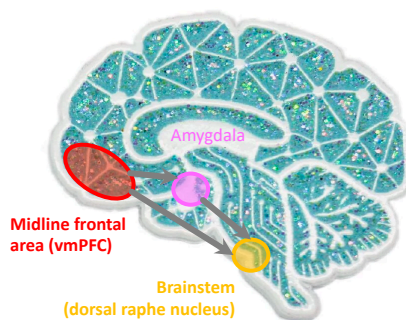
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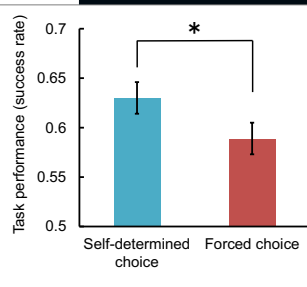
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Dyslexia and Resilience

MAKING CHOICES & SENSE OF CONTROL



Mikulincer. '88, Moller et al. '06, Murayama et al. PNAS '10, Cerebr Cort '13
Hartley et al. Neurobiol Learn Mem '14, Kerr et al. Fron Psychol '12
Goodkin. Learn & motivation '76, Mineka Gunnar Champoux. Child Develop '86



Positive Outcome

Education Psycho-Social Health Income



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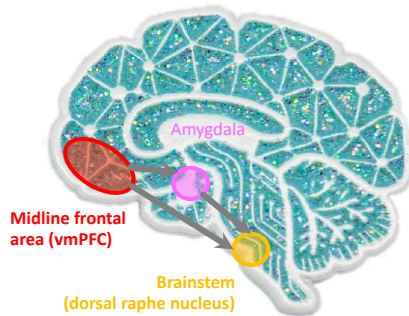
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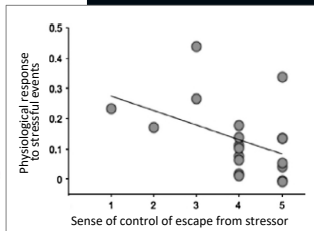
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Positive Outcome

Education Psycho-Social Health Income

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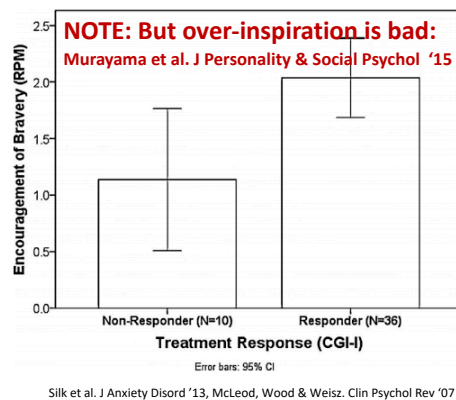
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Dyslexia and Resilience

SUPPORT REDUCES ANXIETY & STRESS



DYSLEXIA

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Positive Outcome

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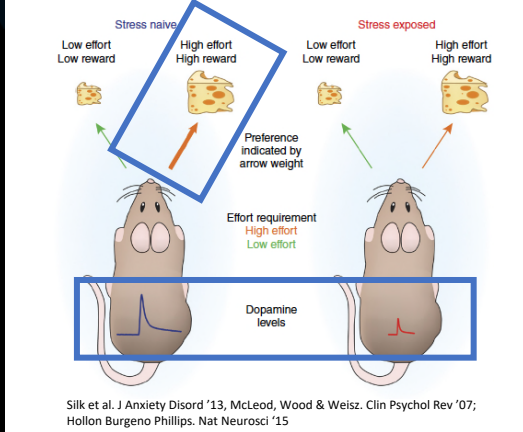
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Dyslexia and Resilience

REDUCED STRESS LEADS TO EFFORT & TAKING RISK



DYSLEXIA

POOR OUTCOME

Positive Outcome

Education Psycho-Social Health Income

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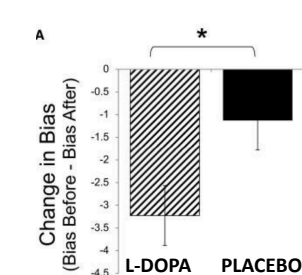
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Dyslexia and Resilience

OPTIMISM



Reduced stress

Increased dopamine

Increased optimism

Resilience & Risk taking

Buffers against depression, & fixed mind
Motivates people to take action/risks.
Combats negative effects of stress on resilience

Sharot et al. Curr Biol 2012; Kleiman et al. Cogn Emot 2018

POOR OUTCOME

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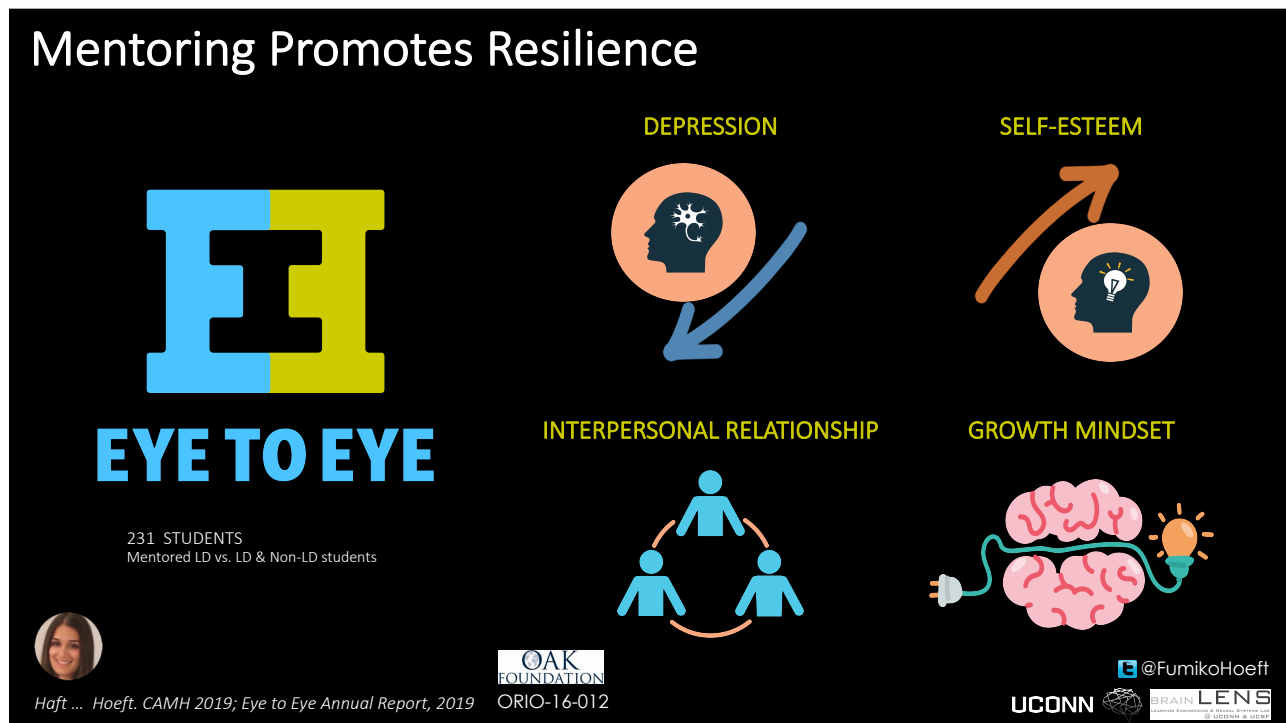
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Mentoring Promotes Resilience



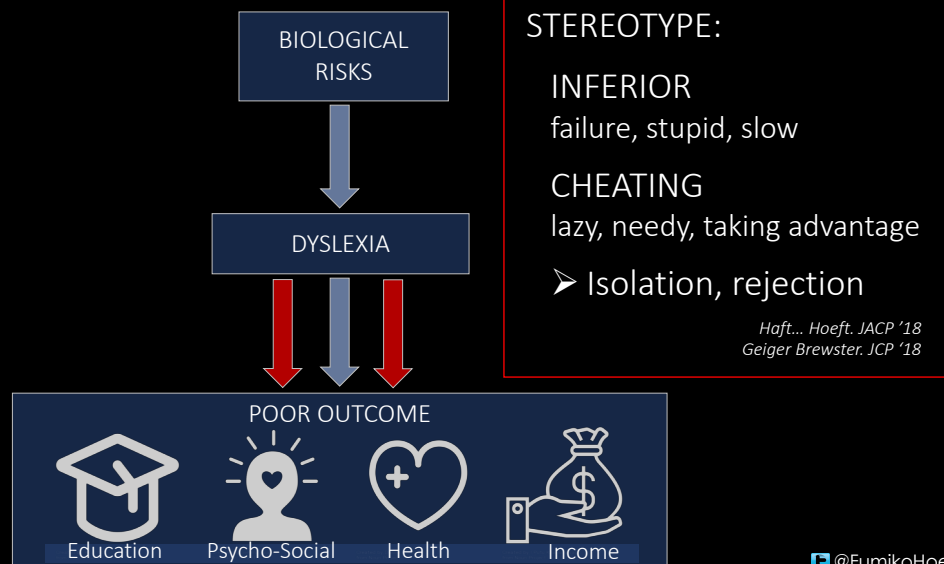
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What are mentors?



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Dyslexia and Stereotype



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Stereotype Threat

Stereotype puts individuals at risk for learning

“Stereotype threat is being at risk of confirming, as self-characteristic, a negative stereotype about one’s group.” –Steele and Aronson (1995)



“White men can’t jump.”



“African Americans have lower intelligence than their white peers.”



“Women are not good at math.”

reducingstereotypethreat.org, Whistling vivaldi by Claude Steele

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Stereotype Threat

ST MAY exist in those with learning disability

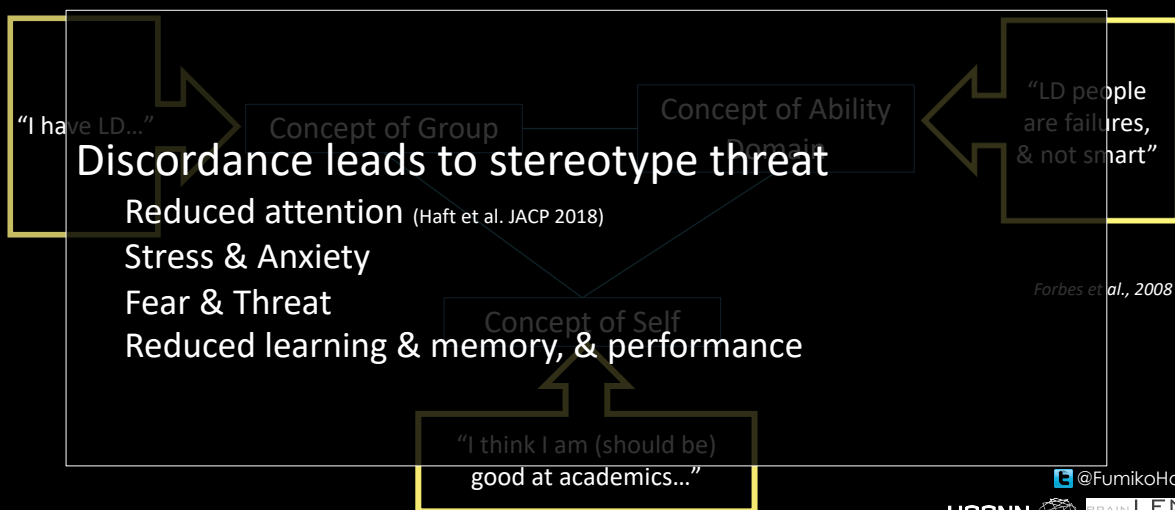
Why?

- Group identification - low achievement
- Aware of stereotype (*Kelly and Norwich, 2004; Rashkind et al., 2006*)
- Negative academic self-concept (*Zelevke, 2004*)
- Low self-esteem, negative affect, anxiety, and depression when faced with performance-avoidance goals (the desire to perform less poorly than others) (*Sideridis, 2007; Aquino, 2011*)

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Stereotype Threat

An Integrated Process Model of ST



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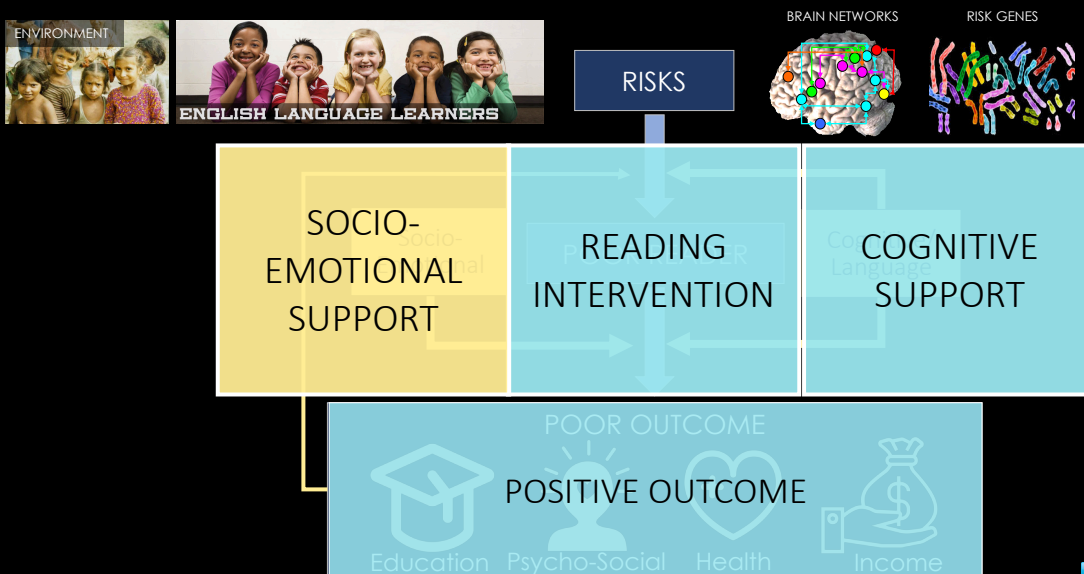
Stereotype Threat

Building Resilience Against ST

- Growth mindset (*e.g. Aronson et al., 2002*)
- External attributions for difficulty (*e.g. Good et al, 2003*)
- Self-affirmations (*e.g. Schimel et al., 2004*)
- Reframing the task (*e.g. Quinn & Spencer, 2001*)
- De-emphasizing threatened social identities (*e.g. Stricker and Ward, 2004*)
- Role models (*e.g. Blanton et al., 2000*)

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Key Factors for Success



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Conclusion

- Find a mentor & role model
- Believe in yourself, & that you can change
- Take that security blanket away
- Experience failure and become resilient
- Be ready for your next challenge, failure & success

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Had a rough day?

Regressing to your
comfort zone isn't all bad!

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