

Predicting student success

Michael Ernst
UW CSE 190b

Time on task

- Engagement with digital textbooks predicts final course grades:
“Predicting course outcomes with digital textbook usage data”, by Reynol Juncoa and Candrianna Clemc, The Internet and Higher Education, Volume 27, October 2015, pages 54–63.
Predictive Analytics For Student Success: Developing Data-Driven Predictive Models of Student Success, University of Maryland University College, January 6, 2015
- Students who used the lecture capture system every week did better than students who didn't use it every week.
“Modelling and quantifying the behaviours of students in lecture capture environments” by Christopher Brooks, Graham Erickson, Jim Greer, and Carl Gutwin, Computers & Education, volume 75, June 2014, pages 282–292.

Time alone is not the best predictor

Delayed gratification: Marshmallow experiment



Child offered one marshmallow now, or 2 marshmallows in 15 minutes

Children who waited for the second marshmallow have, in later life:

- higher SAT scores

Mischel, Walter; Shoda, Yuichi; Rodriguez, Monica L. (1989). "Delay of gratification in children.". *Science* 244: 933–938.

- higher educational attainment

Ayduk, Ozlem N.; Mendoza-Denton, Rodolfo; Mischel, Walter; Downey, Geraldine; Peake, Philip K.; Rodriguez, Monica L. (2000). "Regulating the interpersonal self: Strategic self-regulation for coping with rejection sensitivity". *Journal of Personality and Social Psychology* 79 (5): 776–792.

- lower body mass index

Schlam, Tanya R.; Wilson, Nicole L.; Shoda, Yuichi; Mischel, Walter; Ayduk, Ozlem (2013). "Preschoolers' delay of gratification predicts their body mass 30 years later". *The Journal of Pediatrics* 162: 90–93.

- etc., etc.

Shoda, Yuichi; Mischel, Walter; Peake, Philip K. (1990). "Predicting Adolescent Cognitive and Self-Regulatory Competencies from Preschool Delay of Gratification: Identifying Diagnostic Conditions". *Developmental Psychology*

Grit = perseverance, passion for long-term goals

grit is "sticking with things over the very long term until you master them"

- Grit accounted for 4% of variation in success outcomes; grit not correlated with IQ

"Grit: Perseverance and Passion for Long-Term Goals", by Angela L. Duckworth, Christopher Peterson, Michael D. Matthews, and Dennis R. Kelly, *Journal of Personality and Social Psychology*, 2007, Vol. 92, No. 6, 1087–1101

- Perseverance, self-confidence, and integration toward goals are more important than IQ

Terman, L. M., & Oden, M. H. (1947). *The gifted child grows up: Twenty-five years' follow-up of a superior group*. Oxford, England: Stanford University Press.