Outline

• What does self-control “feel” like?
• What is self-control, precisely?
• What do self-control questionnaires measure?
• Why does self-control vary across situations?
• Why does schoolwork require self-control?
• Why does self-control vary over short periods of time?
• What strategies improve self-control in children?
“Willpower is trying hard *not* to do something that you really want to do”
A sharper definition

• Acting “in a manner consistent with one’s global goals and values” in the face of “smaller, more concrete, and proximal rewards” (Fujita, 2011)

• Choosing to act in accordance with second-order desires *(what I want to want)* rather than first-order desires *(what I want)* (Frankfurt, 1988)
Some children tend to act more self-controlled than others
Unpacking domain-general individual differences in self-control

• Capacity (what I can do)
  – Executive function, metacognitive strategies, scripts

• Information (what I know or believe)
  – Schema, implicit beliefs, cognitive biases

• Motivation (what I want and want to want)
  – Subjective benefits and perceived costs of pursuing temptation vs. global goal
Temperament and personality questionnaires measure behaviors.
Executive function

• Single executive function tasks correlate with parent or teacher ratings of self-control, $r = .14^*$

*Error variance is reduced by aggregating several EF tasks (Beck, Carlson, & Rothbart, in press)*
Ability to delay gratification

• Delay of gratification task performance correlates with informant ratings of self-control, $r = .21$
A network diagram illustrating the relationships between variables such as Delay of Gratification, Effortful Control, Intelligence, Standardized Achievement Test, GPA, Risky Behavior, and BMI z-score. The diagram shows direct and indirect pathways between these variables, with standardized coefficients indicated for some paths.

Key relationships include:
- Delay of Gratification influences Effortful Control
- Effortful Control influences Standardized Achievement Test, GPA, Risky Behavior, and BMI z-score
- Intelligence is influenced by Delay of Gratification and directly connects to Effortful Control
- WJ-R Memory for Sentences, WJ-R Incomplete Words, and WJ-R Picture Vocabulary are measures related to Intelligence

Significance levels are indicated by asterisks: 
- ** indicates p < 0.001
- * indicates p < 0.05
- † indicates a trend with p < 0.10
CBQ Effortful Control

• When drawing or coloring in a book, shows strong concentration
• Prepares for trips and outings by planning things s/he will need
• When building or putting something together, becomes very involved in what s/he is doing, and works for long periods
• Is good at following instructions
• Approaches places s/he has been told are dangerous slowly and cautiously
Eysenck Junior Impulsiveness Questionnaire

• Do you save regularly? (r)
• Do you think that planning takes the fun out of things?
• Do you get very annoyed if someone keeps you waiting?
• Do you often do things on the spur of the moment?
• Do you sometimes get so restless that you cannot sit in a chair long?
Barratt Impulsiveness Scale

• I plan tasks carefully (r)
• I save regularly (r)
• I act on the spur of the moment
• I am restless at the theater or lecture
• I concentrate easily (r)
Brief Self-Control Scale

• I have a hard time breaking bad habits (r)
• I am lazy (r)
• I say inappropriate things (r)
• I am good at resisting temptation
• Pleasure and fun sometimes keep me from getting work done (r)
• I have trouble concentrating (r)
• I often act without thinking through all the alternatives (r)
Big Five Inventory Conscientiousness

- Is a reliable worker
- Tends to be disorganized (r)
- Tends to be lazy (r)
- Perseveres until the task is finished
- Does a thorough job
- Does things efficiently
- Makes plans and follows through with them
- Is easily distracted (r)
- Can be somewhat careless (r)
I can resist everything except temptation
-Oscar Wilde
Unpacking domain-specificity in self-control
Temptation is in the eye of the beholder

Seven Deadly Sins

Anger
Covet
Envy
Glutton
Lust
Pride
Sloth
Domain-Specific Impulsive Behaviors

• I forgot something I needed for class
• I couldn't find something because my desk, locker, or bedroom was messy
• I did not remember what my teacher told me to do
• My mind wandered when I should have been listening

• I lost my temper at home or at school
• I interrupted other students while they were talking.
• I said something rude
• I talked back to my teacher or parent when I was upset
Global goal: Academic success
Proximal goal: Angry Birds

VS

THE ROOTS OF EDUCATION ARE BITTER, BUT THE FRUIT IS SWEET
-ARISTOTLE
Sloane Study of Youth and Social Development ($N = 1228$)

Date ______ Time you were beeped ______ am/pm Time you answered ______ am/pm

As you were beeped ...

Where were you?

What was on your mind?

What was the main thing you were doing?

What else were you doing?

Was the main thing you were doing ...

More like work ( ) More like play ( ) Both ( ) Neither ( )

not at all very much

How well were you concentrating? 0 1 2 3 4 5 6 7 8 9
Were you living up to expectations of others? 0 1 2 3 4 5 6 7 8 9
Was it hard to concentrate? 0 1 2 3 4 5 6 7 8 9
Did you feel self-conscious or embarrassed? 0 1 2 3 4 5 6 7 8 9
Did you feel good about yourself? 0 1 2 3 4 5 6 7 8 9
Did you enjoy what you were doing? 0 1 2 3 4 5 6 7 8 9
Were you living up to your expectations? 0 1 2 3 4 5 6 7 8 9
Did you feel in control of the situation? 0 1 2 3 4 5 6 7 8 9

Were you doing the main activity because ...

You wanted to ( ) You had to ( ) You had nothing else to do ( )

Describe your mood as you were beeped:

Happy ( ) Very ( ) Quite ( ) Some ( ) Neither ( ) Some ( ) Quite ( ) Very ( ) Sad ( ) Strong ( ) Active ( ) Sociable ( ) Proud ( ) Detached ( ) Bored ( ) Confused ( ) Relaxed ( ) Cooperative ( )

Who were you with?

( ) alone ( ) friends ( ) teachers ( ) classmates, peers ( ) other relatives ( ) relatives

( ) mother ( ) father ( ) sister(s) or brother(s) ( ) stranger(s) ( ) other ( )

If you were with friends, how many? ________

Female ( ) male ( )

Any comments?
How *important* was it in relation to your *future goals*?
Describe your mood as you were beeped: happy
<table>
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<th>7th Grade</th>
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The diagram shows the flow of SC (Social Competence) to GPA (Grade Point Average) from 5th to 8th grade, with arrows indicating the direction of impact.
Why girls get better grades

Female → Self-Control

Self-Control → GPA

$\beta = .20^{**}$

$\beta = .64^{***}$ (c.f. gender)

Female → GPA

$\beta = .26^{***}$

$\beta' = .12^*$
Intelligence → Self-Control → Skills/knowledge acquired in school → Skills/knowledge acquired outside school → Homework and classroom conduct → Standardized achievement test scores → Report card grades

Intelligence → Self-Control → Skills/knowledge acquired in school → Homework and classroom conduct → Report card grades

Intelligence → Self-Control → Skills/knowledge acquired in school → Report card grades

Intelligence → Self-Control → Report card grades

Intelligence → Report card grades
Average Yearly Earnings

N = 10,731
Differences in self-control over time

• Maybe exercising self-control physically depletes a resource like glucose
  – “I feel exhausted”

• Alternatively, changes in self-controlled behavior might reflect changes in motivation

• What underlies motivation? Salience and expected value of available goals

• Are these cost-benefit calculations always conscious? No.
“Uncharacteristic” self-control failure

• We become more likely to pursue proximal goal (temptation) rather than global goal when...
  – Salience and expected value of proximal goal increases
  – Salience and expected value of global goal decreases
The perception of uncertain, threatening circumstances increases perceived benefit of proximal goals relative to global, distal goals.
Strategies against self-control failure

• **Decrease** salience and expected value of proximal goal
  – Out of sight, out of mind (hide the marshmallow!)
  – Cognitive transformation (rethink the marshmallow!)
  – Precommitment (increase the cost of eating the marshmallow!)
  – MCII (avoid the marshmallow!)

• **Increase** salience and expected value of global goal
  – Psychological distancing
  – MCII
Strategia
Psychologically distancing onself from an angry memory...

...Replay the event as it unfolds in your imagination through your own eyes.

VS

...Replay the event as it unfolds in your imagination as you observe your distant self.
...reduces negative affect

MCII

• Mental Contrasting promotes effective goal setting
  – What is my goal?
  – What good thing will happen if I achieve this goal?
  – What obstacles stand in the way of my reaching this goal?

• Implementation Intention plans specify where, when, and how you will get around the obstacles
  – “If it is a weekday at 6pm, then I will go to my bedroom and do my work.”
  – And, “If my brother bothers me, then I will...”
Sophomores studying for PSAT
($d = .40$)
Fifth graders’ report card grades and attendance ($ds = .50$)
Summary

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Thank you!
Additional Material

• A glucose-rich beverage compared to placebo placed in one’s mouth and then spit out, rather than ingested improved performance on a recumbent cycle...

• Conclusion: “improvement in exercise performance that is observed when carbohydrate is present in the mouth may be due to the activation of brain regions believed to involved in reward... “ (p. 1779).