Beyond the Marshmallow Test: How to promote goal development and achievement in students

Judy Willis, M.D., M.Ed
www.RADteach.com
Goal-planning, Prioritizing, strategizing, metacognition
“Marshmallow Test”

Goal-directed behavior
Prioritizing

Michael Mischel
Stanford University 1960s.
4-year old children offered a marshmallow left on the table

Told if they waited a few minutes while the experimenter was out of the room, they could have two
“Resisters”

When the children graduated from high school, the impulse controlled “resisters” who delayed gratification & controlled their impulses were:

• More positive, self-motivating, and persistent in the face of difficulties.
• Longer marriages, higher incomes, greater career satisfaction, better health, and more fulfilling lives (self-described).
As adults, were distracted by more pleasurable activities even when they knew they had a responsibility.

Less successful marriages, lower job satisfaction and income, poorer health.
Delayed gratification was more accurate a predictor of later SAT scores in comparison to IQ scores by what percent?
1. 10%
2. 30%
3. 50%
Participant Poll

Delayed gratification was 50% more accurate as a predictor of SAT scores than were IQ scores.

The delayed gratification kids scored an average of 210 points higher on SAT tests.
Goal-Building Interventions

Goal-Motivation
Positive Expectations
Successful Experiences

Skill Development
Inhibitory Control
(delay of gratification)

Prioritizing, strategizing, metacognition
Motivation is Needed for Goal Setting & Achieving
Frustration from frequent failures builds and reduces PFC access needed for memory formation. Students fall further behind, especially for stressed students.
Survival

Stop expending effort when low expectation of success
Repeated Failure
Fixed Mindset Beliefs

• My intelligence and skills are predetermined, limited, unchangeable

• My effort is fruitless

Carol Dweck’s research
Buy-in to goal
Achievable challenge
Frequent Feedback of Incremental progress
Mirror neurons (motor memory) more responsive when:

• Subjects aware of the goal
• Goal was desirable
Emphasize expectation that students can achieve high goals

Students are aware of personally relevant goals & variety of ways will have to engage with the learning (cross-curricular, inquiry, project based, authentic audience)
Planning Performance Tasks For Goal Buy-In

Students know there will be ongoing or frequent opportunities to apply learning to desirable, relevant goals with expectation of achievable challenge:

• throughout the unit
• in a desirable culminating performance task

Video Game Model for Goal Motivation and Mindset

◆ Buy-in to goal
◆ Achievable challenge
◆ Frequent Feedback of Incremental progress
Show achievable segments on route to final goal
Scaffolding & Enrichment
For Goal-Motivation

Students know there will be opportunities for participation and success through a variety of strengths

Students at varying levels engage in flexible learning experiences with scaffolding to support their progress to mastery

Activate prior knowledge to increase successful memory construction
Video Game Model for Goal Motivation and Mindset

- Buy-in to goal
- Achievable challenge
- Frequent Feedback of Incremental progress
A Harvard Business School study evaluated nearly 12,000 diary entries from creative project information workers. They wrote about their levels of goal motivation and emotional states.

MuAmabile, et al The 2003
Participant Poll

Which of these factors had the most impact on goal motivation than any other workday event

1. Monetary incentives
2. Recognition by employer made to employee and their colleagues
3. Personal awareness of making progress in their work
3. Personal awareness of making progress in their work

The workers kept records of their perception of progress.

Awareness of making progress – even small, incremental progress – had more impact on goal motivation & positive emotions than any other workday event.
“Personal awareness of making progress in their work”

Incremental Progress Awareness

When children believe they can be successful at learning, they invest the effort.
Awareness of Incremental Goal Progress

Frequent & timely formative assessment & feedback

Students see the connection between practice and goal progress
Analytic Rubrics

Provide informative feedback about their incremental progress

Reveal multiple criteria to be used in assessment

Students can select from a range of quality levels
Awareness of Incremental Goal Progress

Frequent & timely formative assessment & feedback

Students see the connection between practice and goal progress
Incremental Progress

Effort to goal progress graphs

TOTAL TIME PRACTICED

Number of successful attempts

www.onlinecharttool.com
Incremental Progress

reinforces sustained effort
Growth mindset beliefs:
My intelligence and skill have the potential to grow
My effort and practice can increase my abilities
Perseverance and future goal setting
Goal-Building Interventions

Goal-Motivation
   Positive Expectations
   Successful Experiences

Skill Development

Inhibitory Control
   (delay of gratification)

Prioritizing, strategizing, metacognition
Immediate Gratification

“Resisters” activated more PFC networks.

“Impulsives” activated more emotional lower brain regions.
The Prefrontal Cortex
Multiple Functions

Emotional Control

Long-term conceptual memory

Executive functions
Goal-Building EFs

Inhibitory control  e.g. delay immediate gratification

Prioritizing, organizing, self-assessment, revision
Delayers used strategies to resist immediate pleasure & achieve the goal

Moved the candy out of their sight or moved away from the candy

Resisting temptations or distractions is more strongly associated with school success than IQ or entry-level reading or math skills

Blair C, and Razza RP. (2007)
Develop Inhibitory Control for Goal Development

The drive of immediate gratification is strong

Executive functions must direct conscious resistance of environmental stimuli that are strongly linked with immediate gratification
Developing Goal-Achievement EFs

Inhibitory control

Prioritizing, strategizing, metacognition
Self-Monitoring to Build Self Mastery

Guide students to recognize what promotes their undesirable behaviors (temptation pulls)

Strategize with them: how they can avoid temptation pulls that block goals

Build-up alternative practices

Borich & Tombari, 1997
Promote students to be self-directed & responsible for their own learning

Practice setting goals
Monitoring progress toward them
Adjusting strategies along the way
Assessing outcomes - revising

“Inhibitory Control” enables prudent delay of immediate gratification
WEBSITE
www.RADTeach.com
Next “Ask Dr Judy” Webinar
Brain Owner’s Manual Oct 24

The Essential Neuroscience of Learning: What every educator needs to know and teach students:

Judy Willis, M.D., M.Ed
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