Best Practices in Self-Monitoring Interventions

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Welcome!

- Who are we?

- Who are you?

What do we know about the classroom experience of students with emotional/behavioral disorders (EBD)?

- 47% of students with EBD spend 80% or more of their day in a <u>gen ed classroom</u>
  - What does instruction and classroom management look like in these settings?
    - Lack of pre-service preparation in effective classroom management strategies
      - Reactive/punitive discipline practices

Disciplinary Events for Students with EBD

|	Students with disabilities	Students with EBD
Alternative placement	13 out of 10,000	50 out of 10,000
OSS for more than 10 days	77 out of 10,000	365 out of 10,000
ISS for more than 10 days	37 out of 10,000	123 out of 10,000

How does reactive discipline impact students?

- If a student receives 2 ODRs by October, they are significantly more likely to be suspended

- Students who are suspended once are significantly more likely to drop out of school, commit a crime, and be incarcerated as an adult

- Students who drop out of school are significantly more likely to be arrested and make significantly less money

How does challenging behavior impact teachers?

- 34% of teachers have reported that student behavior interfered with their teaching (Dinkes et al., 2009)

- 35% of first-year teachers have reported student discipline as their primary reason for leaving the field (Ingersoll & Smith, 2003)

  - 9.5% leave teaching **BEFORE** the end of the first year
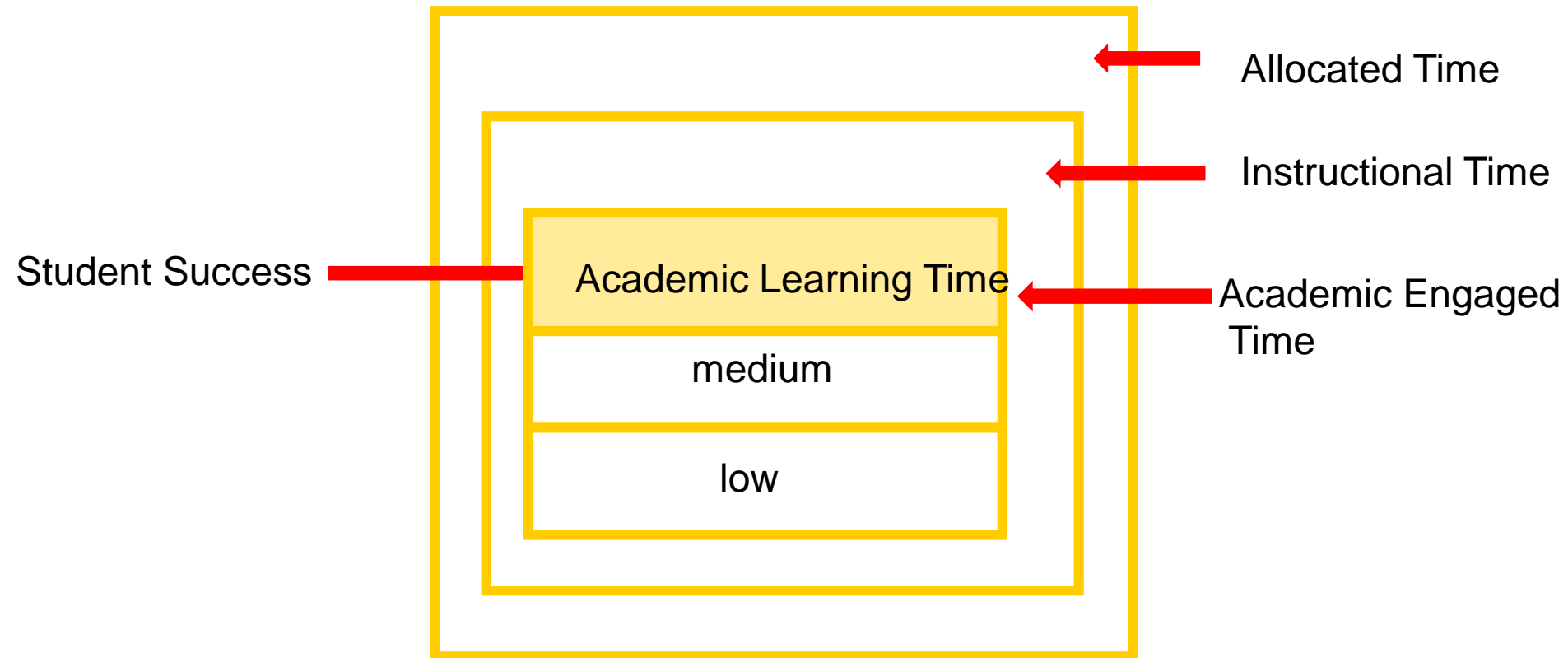
  - 40-50% leave teaching within the first 5 years

How does this impact schools and districts?

- High teacher turnover
  - Drains financial resources for recruiting, hiring, & training
  - Is significantly correlated with a negative school climate
  - Results in significantly lower student achievement, particularly in low-performing schools and for minority students

Reactive, punitive discipline

Students with challenging behavior

Teacher turnover & district cost
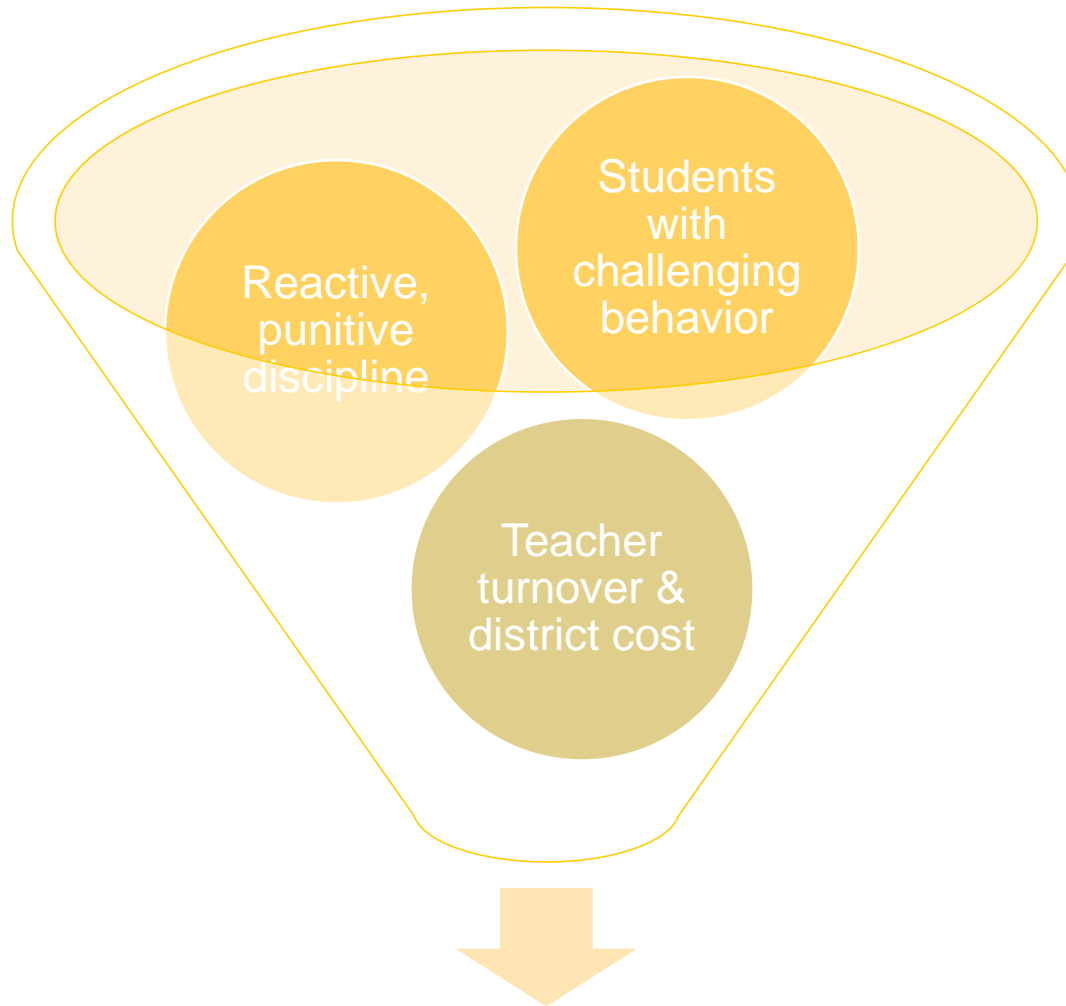
What proactive strategies can we put into place that will keep students in the classroom, help them be engaged, and in turn, improve outcomes?

Consider This: Academic Learning Time

Allocated Time

Instructional Time

Student Success

Academic Learning Time

Academic Engaged Time

medium

low

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Academic Engaged Time

- Students with challenging behavior may lack self-regulation skills required to be academically engaged (e.g., on-task, following directions, attending to material)
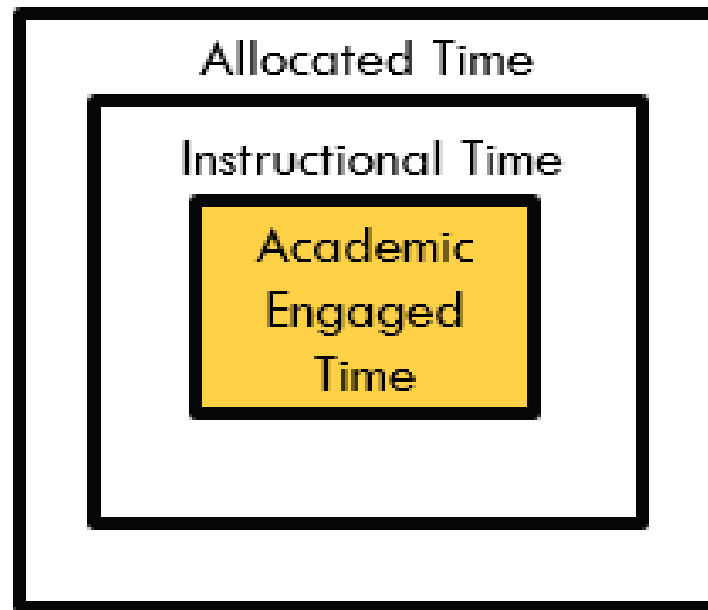
The Marshmallow Test

Self-Regulation

- Unfortunately, many students with challenging behavior lack self-regulations skills
  - These skills are critical for academic success and developing positive social relationships
    (Cameto, Levine, Wagner, & Marder, 2004; Carter, Lane Pierson, & Glaser, 2006)
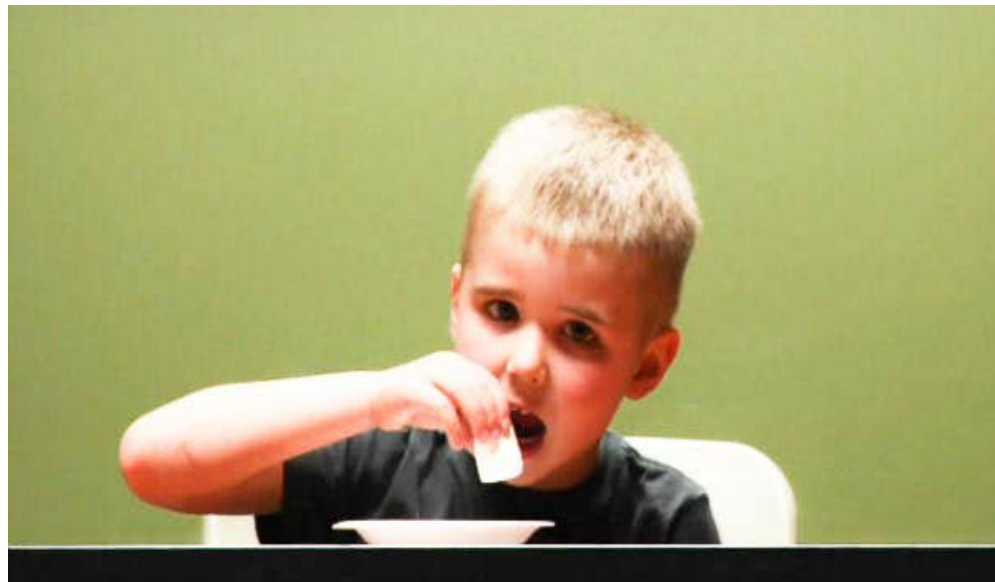
What does it mean to be a self-regulated learner? (Arslan, 2014)

- Establish goal

- Determine learning strategies that support progress toward that goal

- Apply strategies

- Monitor progress toward goal

Strategies for improving students' self-regulation skills

- Self-monitoring
- Self-evaluation
- Self-instruction
- Goal-setting

What is self-monitoring?

- A meta-cognitive skill that involves:

    (a) teaching students to be aware of their behavior, and then

    (b) students recording whether or not the behavior occurred

- Additional components:
    - Reinforcement
    - Feedback
    - Goal-setting
    - Technology

Are there behaviors that you self-monitor?

Example of "in the moment" self-monitoring: Are you in your seat?

Behavior: In Seat		
Interval	Yes	No
1:00	X	
2:00	X	
3:00		X
4:00	X	
5:00		X
6:00	X	
7:00	X	
8:00	X	
9:00	X	
10:00	X	
Total	80%	20%

Goal: During math class, Juan will be in his seat for 80% of intervals each day for a week.

Example of "retrospective" self-monitoring: Are you meeting the classroom expectations?

Who can benefit from self-monitoring?

- Students engaging in low-intensity, moderate to high frequency behaviors (e.g., off-task, disruptive) rather than high-intensity behaviors (e.g., self-injury, aggression)

- Students engaging in overt (not covert) behaviors

Does self-monitoring actually work?

- Improved math achievement (Mooney et al., 2005)

- Improved reading skills (Briesch & Chafouleaus, 2009)

- Improved social interactions (Bruhn, McDaniel, & Kreigh, 2015; Sheffield, & Waller, 2010)

- Increased academic engagement

    - 46% baseline to 82% during SM (Bruhn et al., 2019)

- Decreased disruptive behavior (Bruhn et al., 2015; Bruhn et al., 2019)

    - 32% baseline to 13% during SM (Bruhn et al., 2019)

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What does the most recent research say about how self-monitoring intervention components and student traits affect outcomes ?

9551
- Electronic and ancestral search (2000-2019)
- Title and abstract review

239
- Read entire article for inclusion

67
- Met inclusion criteria

Inclusion Criteria

- Single-case design with graphed data

- Self-monitoring intervention for behavior

- Measure of student's academic engagement

- Student had documented behavior problems

- Intervention took place in educational setting

Method

- Coding
  - Demographic info
  - Intervention components
  - 100% double-coded, 97% initial reliability, 100% final reliability

- Data extraction
  - 100% double-coded, 88% initial reliability, 100% final reliability

- Data analysis
  - Multi-level modeling to examine how student characteristics and intervention components are associated with effects on academic engagement
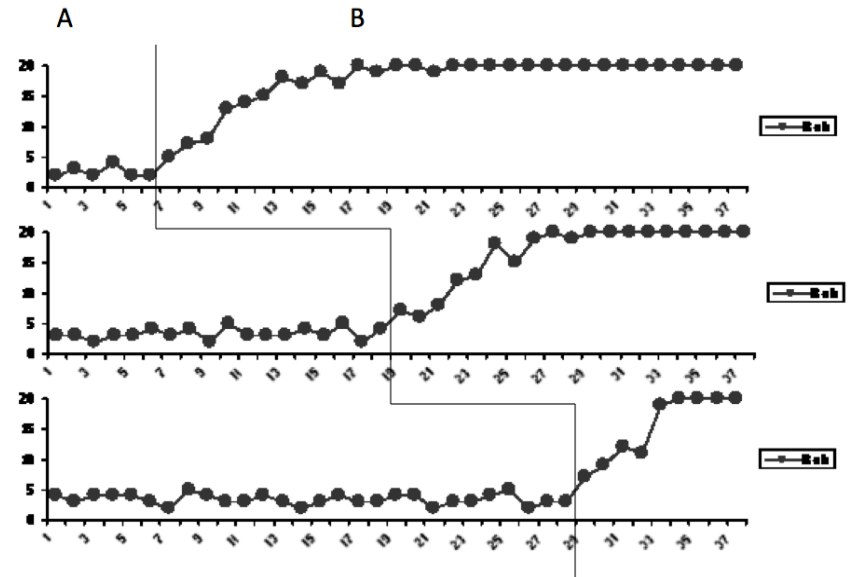
Results

Overall Effects	Students	Setting
Time	Goal-Setting	Reinforcement & Feedback

Overall Effects
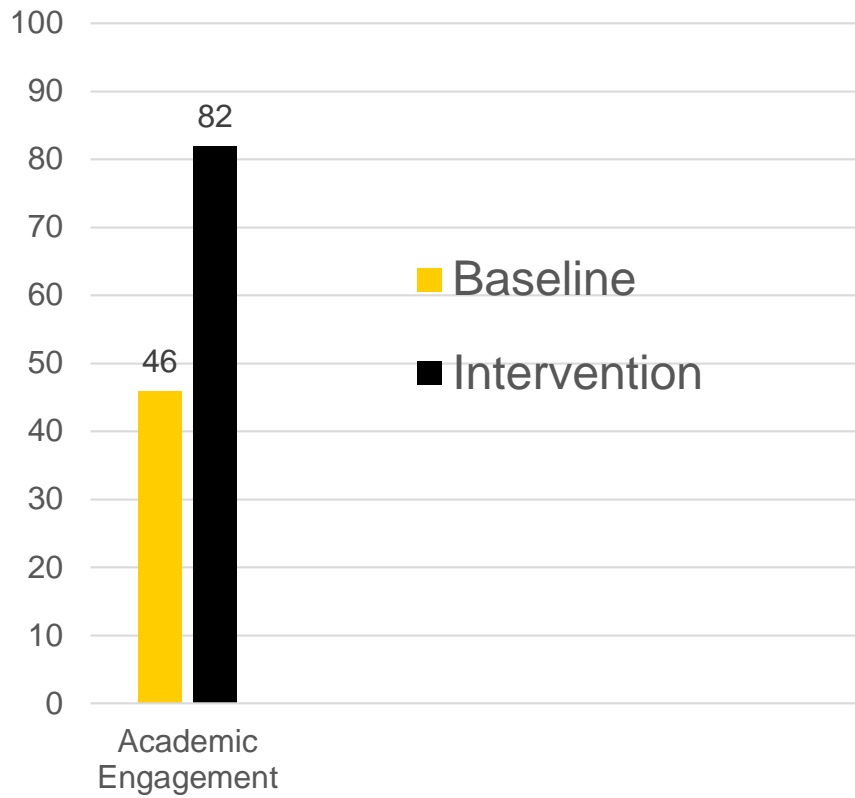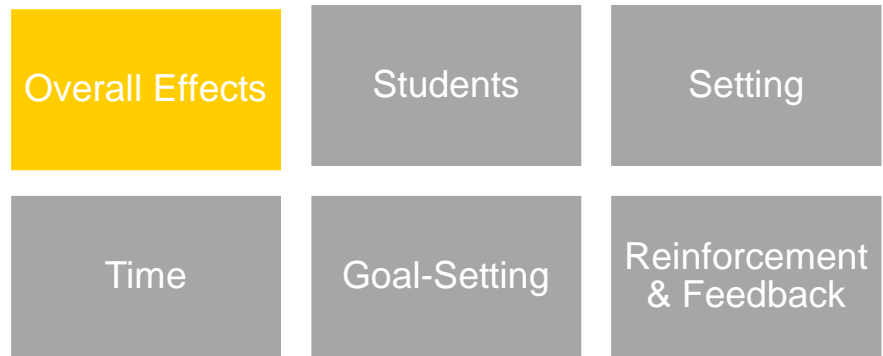
Overall Effects

Students

Setting

Time

Goal-Setting

Reinforcement & Feedback

Bar chart — Academic Engagement. Baseline: 46. Intervention: 82.

- 36 percentage point increase in academic engagement

- This equates to an additional 3.6 minutes of engagement for every 10 minutes of instruction

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Overall Effects: Implications

- 36 percentage point increase in academic engagement

- This equates to an additional 3.6 minutes of engagement for every 10 minutes of instruction
  - Multiply this over the course of a week

- 5 days, 30 minutes of instruction each day

	Daily Academic Engagement	Weekly Academic Engagement
No intervention	14 of 30 min	70 of 150 min
Self-monitoring Intervention	25 of 30 min	125 of 150 min

Students

Trait	Results (N = 228)
Gender	173 Male, 55 Female
Ages	6 to 17
Race	82 White, 34 Black, 16 Hispanic, 7 Other, 3 Asian, 81 Not Reported
Disability	148 with disability (LD, ADHD, ASD, ID, SLI, EBD) 117 with IEP
Grade Level	130 ES, 40 MS, 24 HS, 30 Not Reported

- Self-monitoring was equally effective for students with and without disabilities and of different races

- Larger increases in academic engagement for male students and younger students

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Students: Implications

- Self-monitoring works for a range of students with challenging behavior
  - With AND without disabilities
    - An IEP is NOT required to deliver intervention
  - ALL races
    - Keep students of color IN the classroom with proactive supports
  - BOTH genders, but in particular, boys
    - 3 times as many boys in the sample, but this is consistent with the percentage of students typically identified with behavior problems
  - ALL ages, but better in younger students
    - Limited sample in middle and high schools

Setting
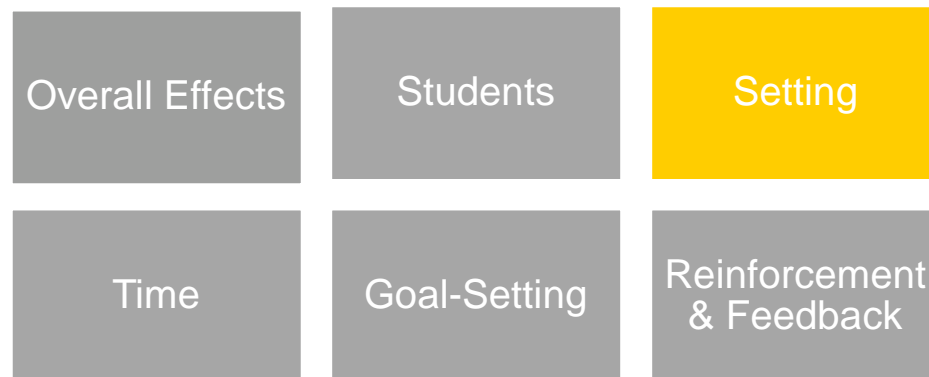
- Studies took place in a variety of settings (e.g., general education settings, self-contained sped classrooms, resource rooms)

- Students experienced better academic engagement when intervention occurred in general education settings

Setting: Implications

- Students with disabilities and students with challenging behavior WILL be in general education classrooms
  - Despite the complexity and size of gen ed settings, these interventions still can work
    - Even with 25-30 students, teachers can STILL complete parallel procedures

Time
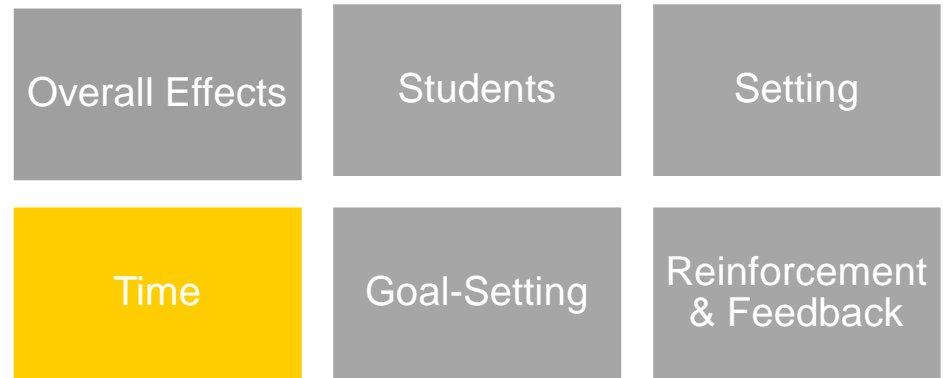
- Session length varied from 5 min to 420 min (the whole school day), though most were under 60 min
- Interval length ranged from every 30 sec to every 20 min
  - Shorter intervals resulted in better academic engagement

Time: Implications

- Shorter intervals are better, but this must fit within the constraints of the classroom
  - What type of instruction is occurring and what is the student doing?
  - Are you completing parallel procedures?
  - Are you doing "in the moment" or "retrospective" self-monitoring?

Goal-Setting
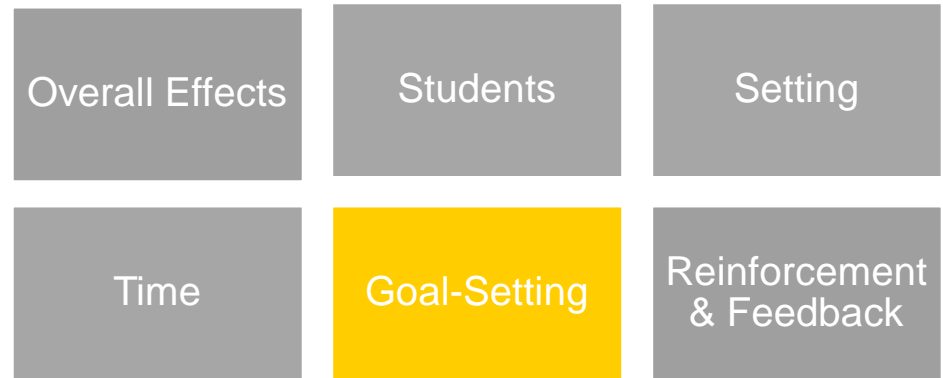
- Studies that included goal-setting had treatment effects that were, on average, 6.3 percentage points higher than participants in studies that did not include goal-setting

Goal-Setting: Implications

- Use baseline data to set a reasonable, attainable goal

- Graph data and show the student their progress

- For responders, slowly raise goals over time

Reinforcement

Overall Effects	Students	Setting
Time	Goal-Setting	Reinforcement & Feedback
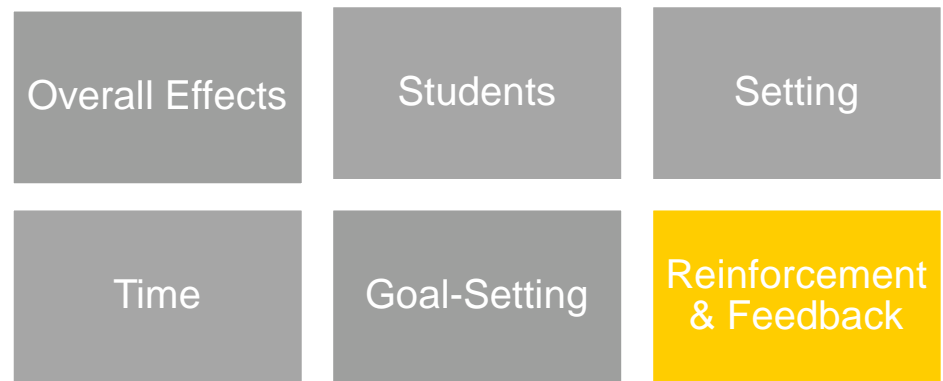
- Students earned reinforcement for:
  - Meeting a goal
  - Matching (i.e., accuracy)
  - Following procedures

- In studies that included reinforcement, the average treatment effect was nearly 10 percentage points higher that those without reinforcement

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Reinforcement: Implications

- How to implement reinforcement effectively:
  - Tie reinforcement to Tier 1 plan
  - Immediate follow through
  - Function-based
  - Fading for responders

Feedback

- Students received feedback for:
  - Meeting a goal
  - Matching (i.e., accuracy)
  - Following procedures
  - Positive behavior

Overall Effects	Students	Setting
Time	Goal-Setting	Reinforcement & Feedback

Studies including teacher-delivered feedback resulted in significantly better treatment effects

Feedback: Implications

- How to implement feedback effectively:
  - Use data (e.g., student data or teacher data, if completing parallel procedures)
  - Be specific (praise or correction)
  - Deliver in close proximity
  - Take advantage of the additional opportunity to build rapport with the student

Take Away Messages

- Self-monitoring interventions:
  - Improved academic engagement for students with range of ages, abilities, and races
  - Are effective in general education settings
  - Should have shorter intervals that fit within the context of classroom activities
  - Are more effective with goal-setting
  - Should include reinforcement and/or feedback

Beyond Traditional Paper/Pencil Forms

We use technology to self-monitor so many other things…why not behavior in schools?
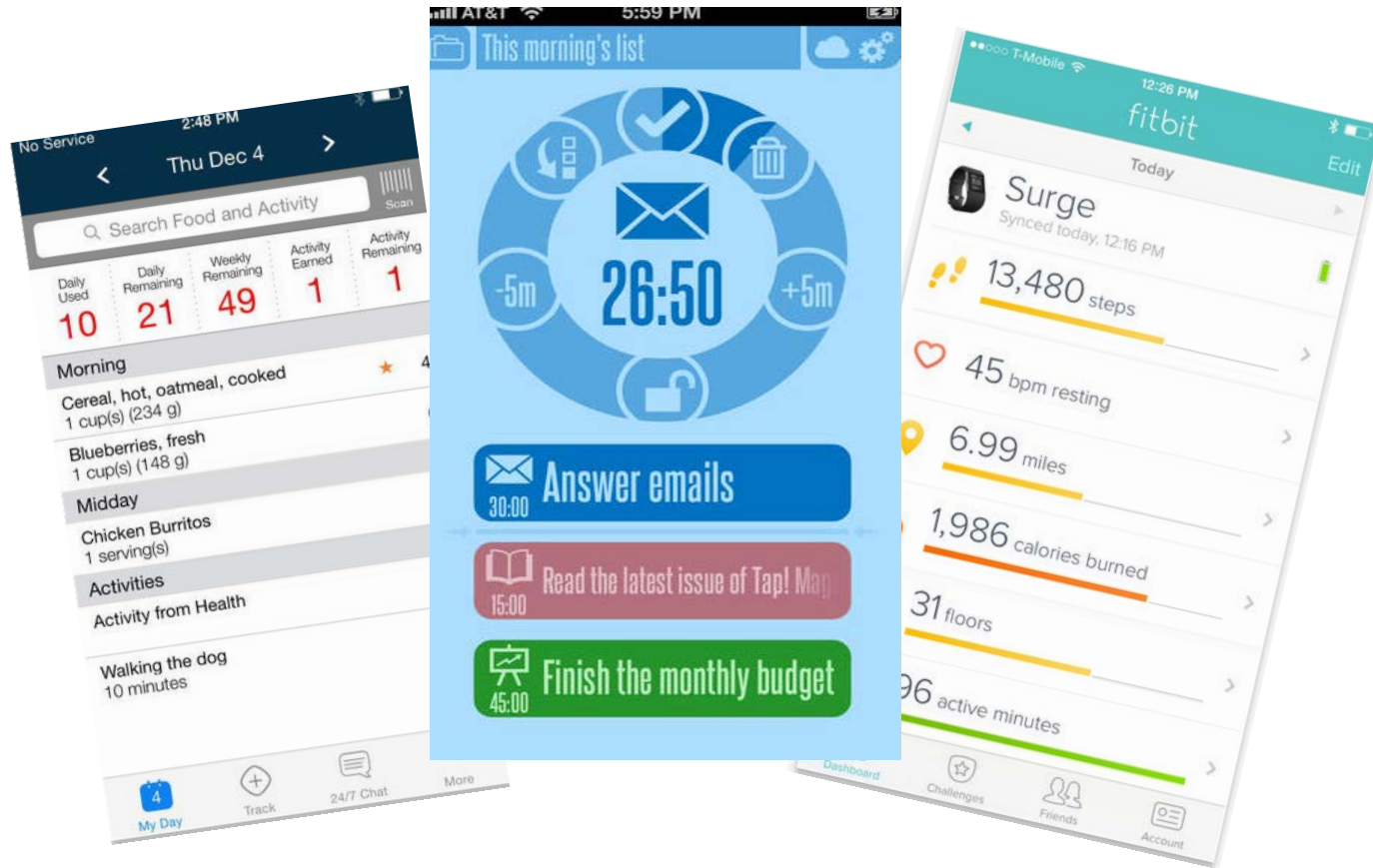
Traditional use of technology: Cueing devices

- Helpful for cueing, but not collecting data
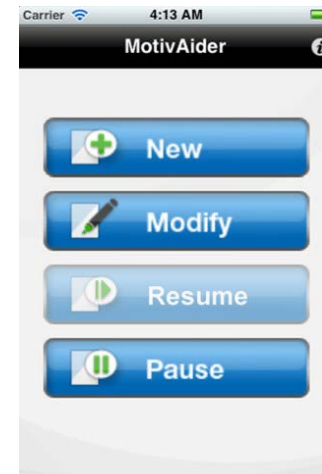
What can we learn from the medical field?

- Technology-based self-monitoring has been used to manage
  - Diabetes
  - Mental health/mood tracking
  - Weight loss
  - Physical activity

- More efficient
- Improves adherence
- Greater achievement toward behavioral goals

Reported Benefits

Health Care Professionals	Patients
Real-time patient care data	Real-time feedback
Another means of communicating	Reminders
Data over time	Goal-tracking
Increased patient Accountability	Accountable and Supported

Bruhn & Wills, 2018

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Moving Forward

- Can we leverage technology to incorporate critical components for self-monitoring interventions while allowing teachers to customize the intervention to best meet their needs?

Monitoring Behavior on the Go (MoBeGo)

Phase 1 of Randomized Control Trial

- 31 students (5th-8th grade) across Iowa and Tennessee

- Academic engagement increased by 21 percentage points
  - Increase was statistically significant
  - Effect size = .58

If you want to increase academic engaged time for students with challenging behavior…

Allocated Time

Instructional Time

Academic Engaged Time

Self-Monitoring

Academic Engaged Time
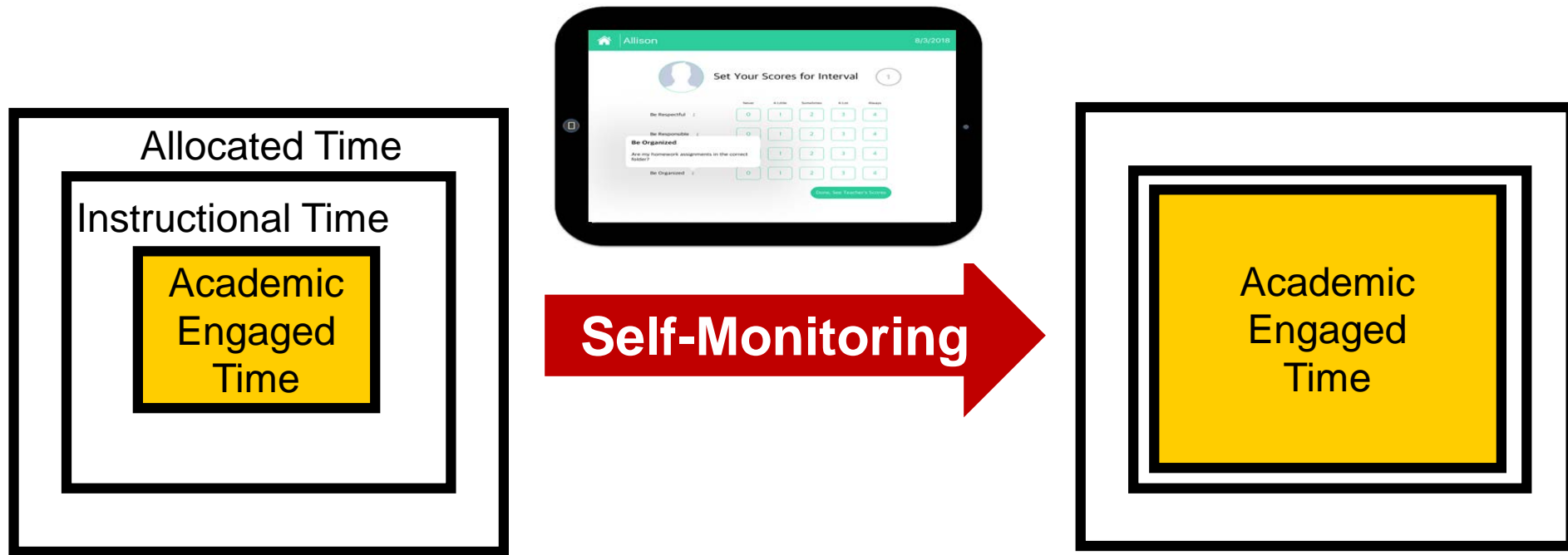
When students are more engaged, they are more likely to be learning!

Questions???

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