

Probability, High-Leverage Practices, and Teacher Behavior: Changing Adult Behavior to Affect Student Outcomes

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Predicting Student Outcomes

Predictors

**What Adult Behaviors
are Most Predictive of
Students Engaging in
these Behaviors?**

Predictors of Success

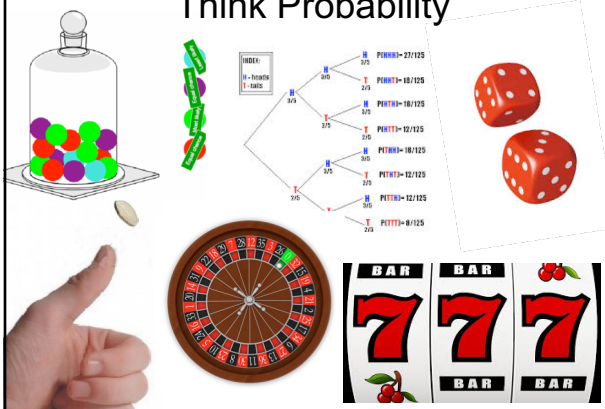
Interest
Self-discipline
High relevance to future
Positive relationships
with teachers and peers
Academic on task
Participation
Attendance
Belonging

Outcomes

Confidence, graduation,
employment, independence

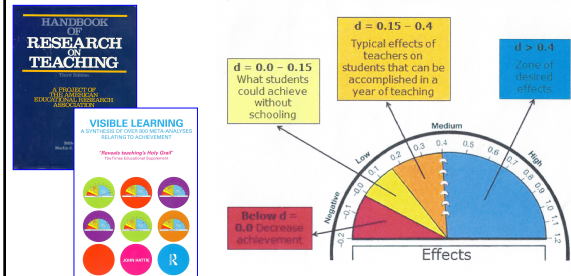
Dropout, law violation, other services,
drug use, automobile accidents, etc.

Think Probability

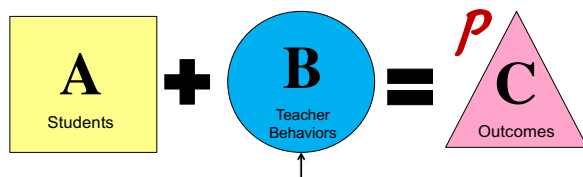


What Works?

- Effective Classrooms Literature from 1970s
(e.g., Brophy, Good, Rosenshine, Berliner, et al)
- Meta-Analyses from past 15 years
(e.g., Hattie, Gottfredson, et al)



Considering the Logic of Probability for Instruction and Management



Provide the Highest Probability of Positive Outcomes

- Explicit curriculum • Modeling • Engagement • Goals
- Consistent routines • Guided practice • Proximity
- Spaced authentic practice • Formative assessment
- High rates of positive to negative feedback

What is an Effective Teacher?

- Anyone can tell students something or tell them what to do
- A teacher creates a set of circumstances that increase the probability of the student being successful now and in the future

Instruction	Environment	Relationships
<ul style="list-style-type: none"> Teacher facilitated Direct and explicit Authentic examples Multiple opportunities Engages students 	<ul style="list-style-type: none"> Arranges physical space Develops routines Develops Procedures Consistent across time and students 	<ul style="list-style-type: none"> Communicates often Conveys genuine interest in students Maintains role of encouraging teacher

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Effective Instructional Practices and Student Success/Failure

Consider the degree to which teachers provide:

- Focus on students (time spent teaching)
- Opportunities to respond (OTR)
- Positive feedback
- **Teachers using the least amount of these practices have students that are 27% more likely to be off task and 67% more likely to be disruptive**

(Gage, Scott, & Hirm, in press)

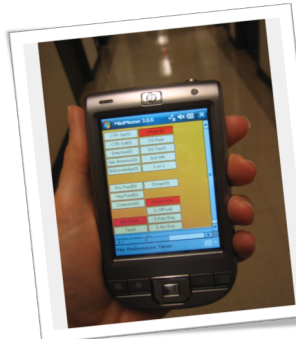
Success Enhances Relationships



To What Degree do Teachers Use High Probability Strategies?

Classroom Observations Study

- Observe how teachers and students interact during typical classroom instructional periods
- 15 minute observations of individual student in context of classroom
- 12,000 classroom observations around the world



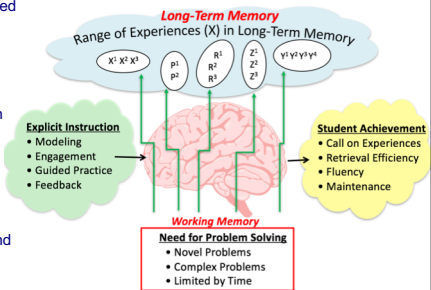
Make Connections to Students' Lives

- Guided explicit instruction with repetition and varied examples enhances storage in long-term memory

- Unstructured learning places a heavy load on working memory -- Information not stored in long-term memory is lost in 30 seconds

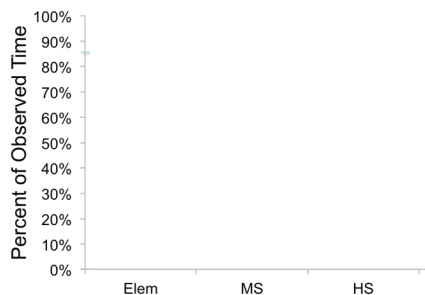
- Students with deficits can actually lose ground when instruction is not structured and explicit

- Especially important for novice learners



(Based on Kirshner, Sweller, & Clark, 2006)

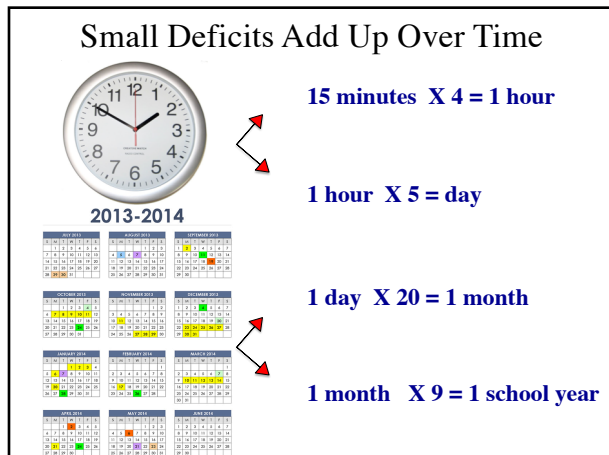
What Do You Think Average Time Spent Teaching Looks Like?



(Scott, Hirm, & Cooper, 2017)



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Extrapolating Across the School Year **Teaching**

Assuming 5 hour school day, 20 day school month, and 180 day school year

Not teaching = wasted instructional time	% of 15 min "Not Teaching"	Instruction Time Not Used (no teaching or monitoring)			
		Per Hour	Per Day	Per Month	Per Year
Elementary	10%	6 min	30 min	2 days	18 days
Middle School	10%	6 min	30min	2 days	18 days
High School	28%	16.8 min	1.40 hours	5.6 days	2.4 months

Definition of Not Teaching:

Teacher is not engaging students and is involved in independent task with no interactions with student.

Engagement is a Teacher Behavior

Teacher provided opportunities for student response during instruction (OTR) is associated with higher active student engagement and increased achievement

- Effective Teachers find ways to engage all students
 - Verbal responses
 - Raise hand to indicate agreement
 - Create and share
 - Demonstrate
 - Talk to neighbor
- Keys
 - High rates of success
 - Used as vehicles for delivering positive feedback



High Poverty Schools & Engagement Using Instruction to Predict Student Success



	τ_{00} Between-school variance	σ^2 Within-school variance	$\tau_{00}/(\tau_{00}+\sigma^2)$ ICC	Reliability estimate
Group OTR	0.033***	0.603	0.051	.557
Individual OTR	0.001	0.134	0.009	.182
Positive feedback	0.000	0.028	0.008	.16
Negative feedback	0.000**	0.004	0.033	.443

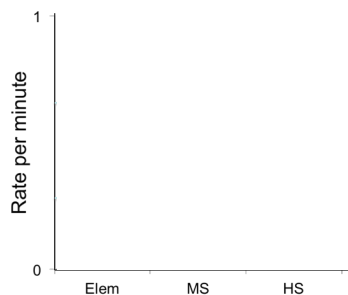
Note. ICC = Intraclass Correlation Coefficient.

* $p < .05$. ** $p < .01$. *** $p < .001$.

- Group OTR predictive of academic achievement
- Negative Feedback predictive of school suspension
- Differences across schools are at the teacher level

(Hirn, Hollo, & Scott, in press)

What Do You Think Average OTR Rates Look Like?

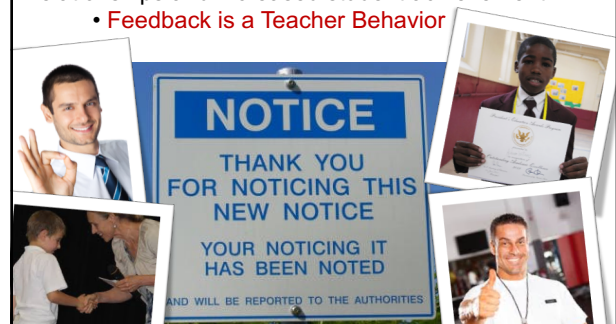


(Scott, Hirn, & Cooper, 2017)

Frequent Feedback

Positive acknowledgement is associated with positive relationships and increased student achievement

- Feedback is a Teacher Behavior



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Acknowledge Success

- Level 1: Verbal Praise
 - Age appropriate
 - Be specific
- Level 2: Access to Privilege
 - Things that are already exist
 - Use to double up for needy students
- Level 3: Public Acknowledgement
 - For those who like it
 - Range of alternatives



Responding to Misbehavior/Errors

- We have zero evidence that removing a student from the classroom or school results in a decrease in problem behavior
 - More likely to be used with minorities and students with disabilities
- Correction is a more positive and effective response
- Consider the Restorative Practices language



(Hirn & Scott, 2014; Scott, Gage, & Hirn, in review)

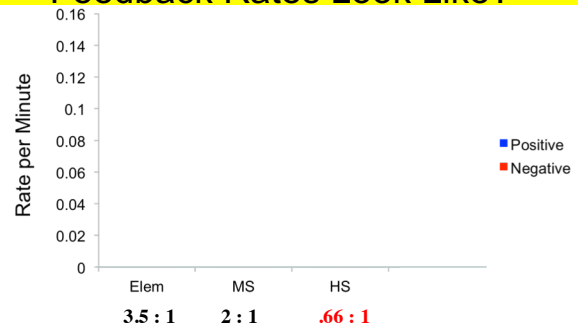
Acknowledge Errors with Correction

Elem Rate = .007

Middle School Rate = .004

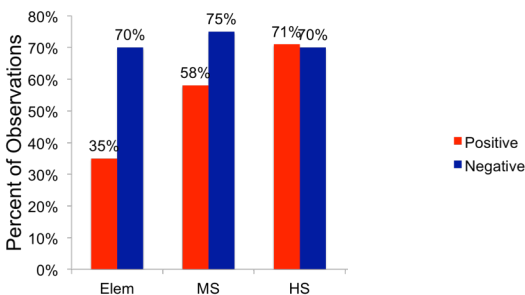
High School Rate = .005

What Do You Think Average Feedback Rates Look Like?



(Scott, Hirn, & Cooper, 2017)

Feedback - Zero Rates



Percent of observations in which there were zero feedback instances observed
(Scott, Hirn, & Cooper, 2017)

Coaching is an Essential Component of Changing Adult Behavior

	Increase Knowledge	Skill Demonstration	Use in the Classroom
Presentation/Discussion	10%	5%	0%
+Demonstration	30%	20%	0%
+Practice and Feedback	60%	60%	5%
+Coaching in Classroom	95%	95%	95%

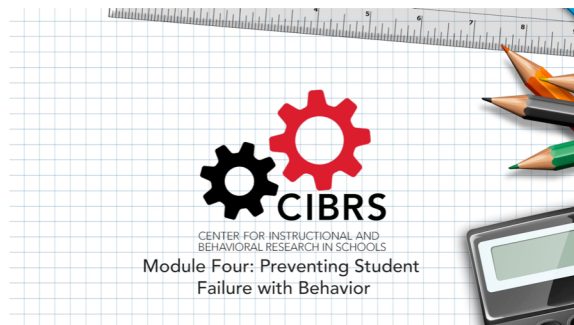
Joyce and Showers, 2002

Coaching Strategies:

1. Self-Monitoring – video-based self-assessment (not coaching)
2. District- or School-Based coaches are assigned to work with teachers
 - time intensive – can't coach all adults
3. Administrator Coaching
 - time intensive – can't commit sufficient time to all adults
4. Professional Learning Communities (PLCs)
 - Monthly meetings to discuss practice and peer-observations with formative feedback and facilitated by trained school or district coaches

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Video Modules



Describe and Demonstrate via Video



Opportunities to Discuss

- During the session, teachers are asked to discuss questions related to the content (during and after the video)

Discuss as a Group

What strategies do you have for increasing your rate of positive feedback for all students?

Homework

- After reviewing the video and the facilitated discussion, teachers use strategies in the classroom for designated timeframe

1. Try using some new strategies for providing OTR in your classroom.
2. Be prepared to discuss what you learned- especially how you adapted these strategies for your students and content.

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