A young child with blonde hair and blue eyes is looking intently at a molecular model. The child is holding a yellow balloon. The background is a laboratory setting with a white wall and a window. The molecular model consists of red, orange, and black spheres connected by thin rods. The child's hand is visible, holding one of the spheres. The overall scene suggests a child's curiosity and engagement with science.

On being everyday scientists: Principles for influencing human behavior

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PAXIS Institute • Tucson, AZ

Invited presentation:

Child Welfare Evaluation Summit

August 28-30,
2011



Everyone can become an everyday scientist

Every baby born is an everyday scientist.

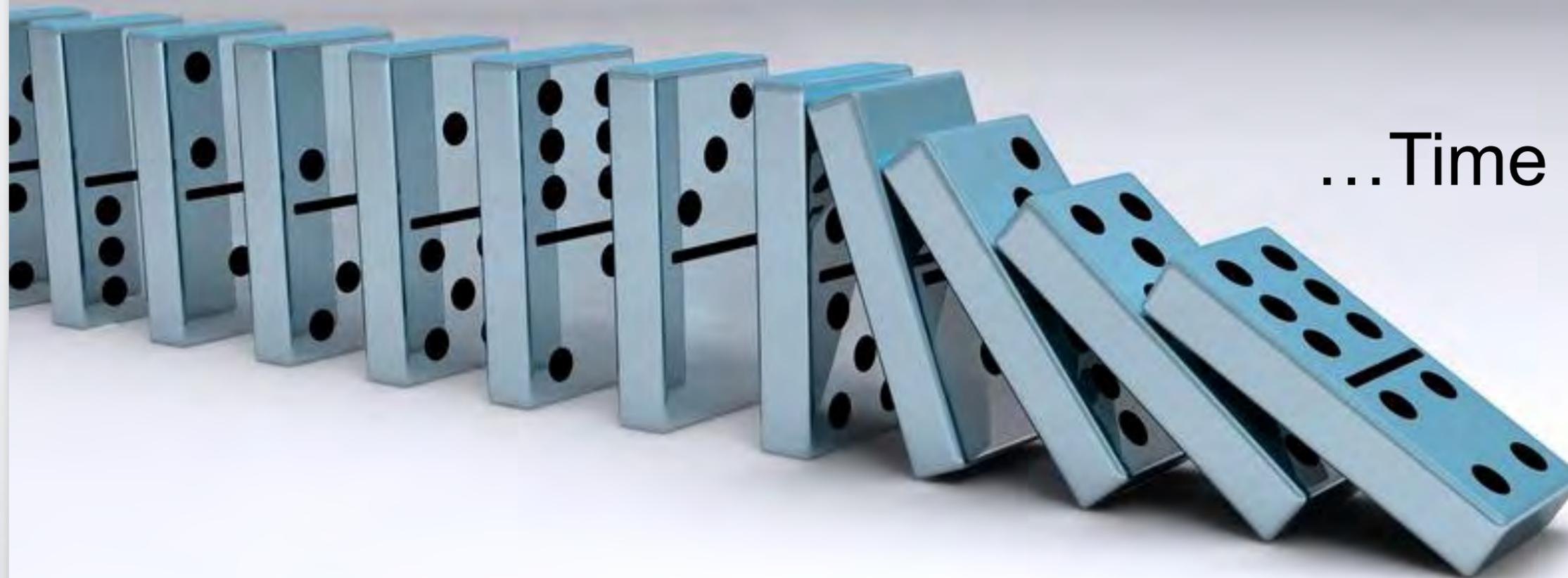
Adults can become proficient everyday scientists by learning to measure cause and effect using simple measures and simple ways of measuring the reliability of change.

Being an everyday scientist is what makes humans powerful in the world at solving problems, provided we have psychological flexibility.



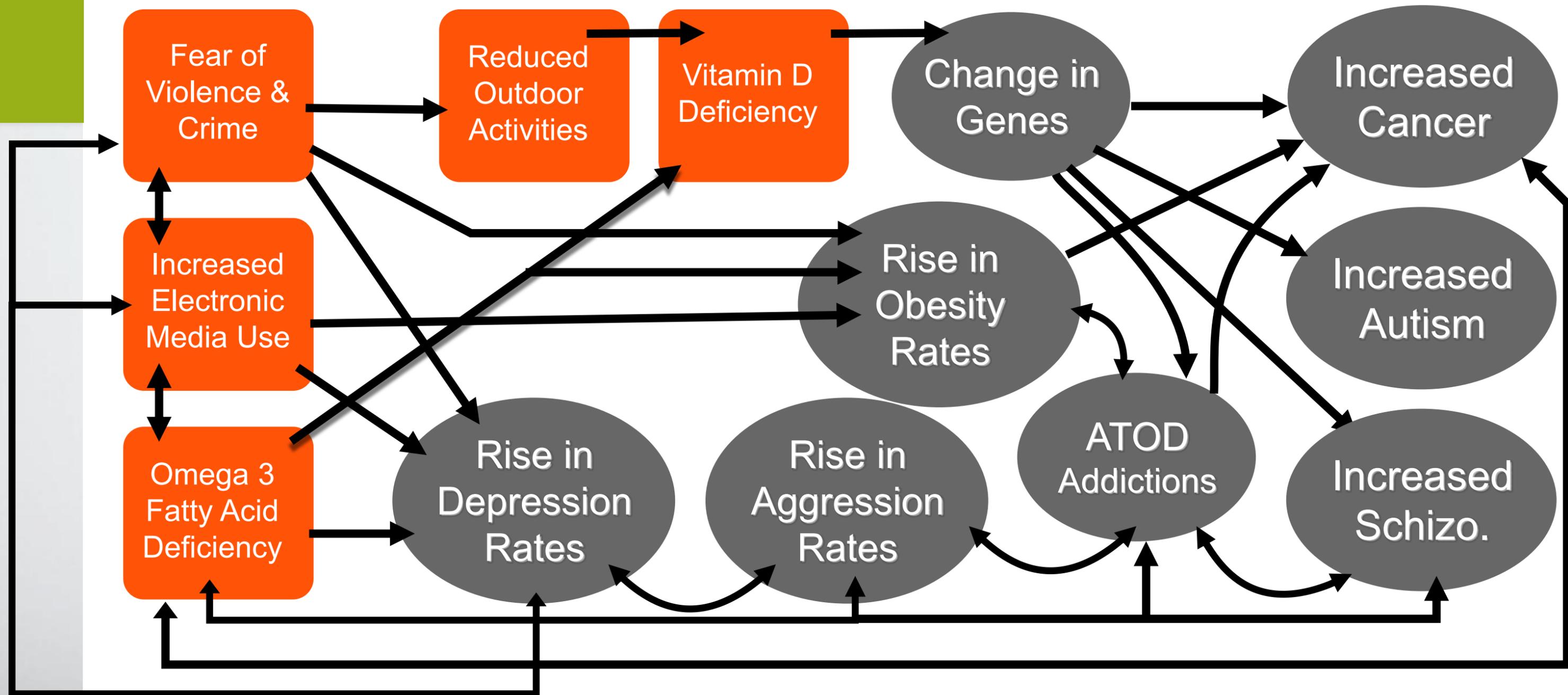


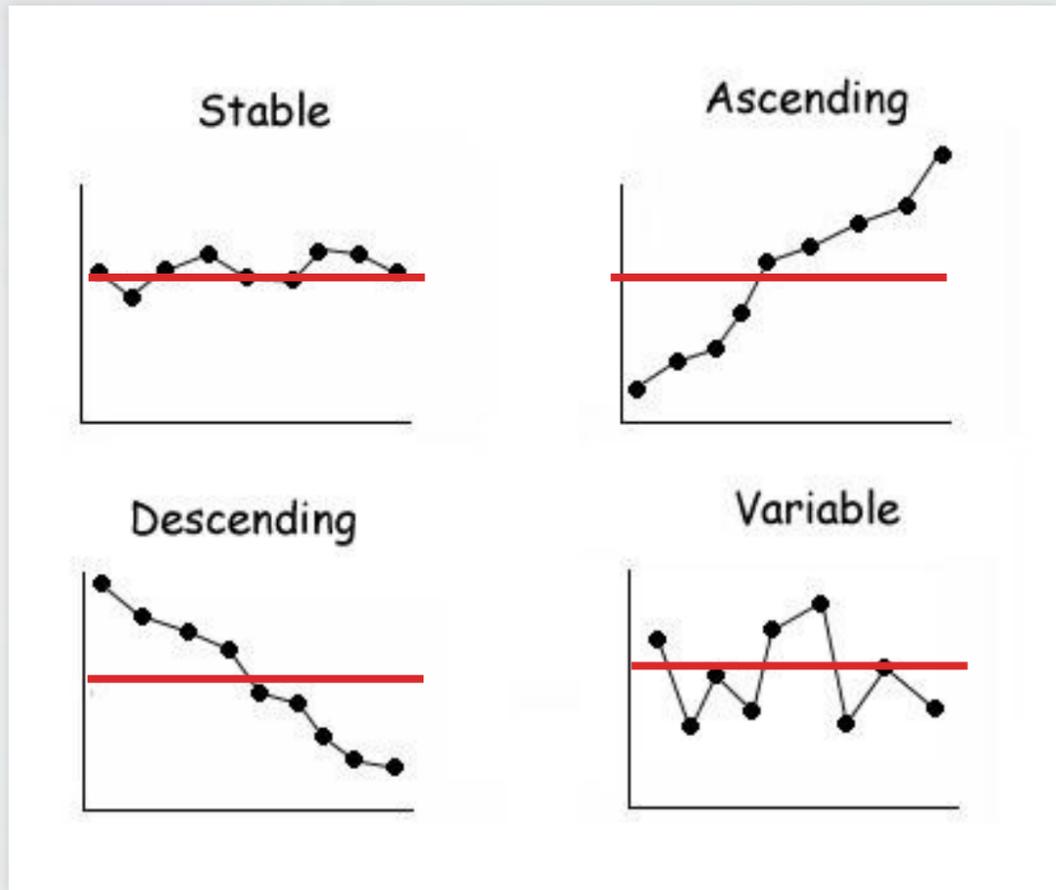
A major threat to validity to our collective ability to influence lies in Cook & Campbell methods book...



...Time of History

New combinations of events predict new challenges





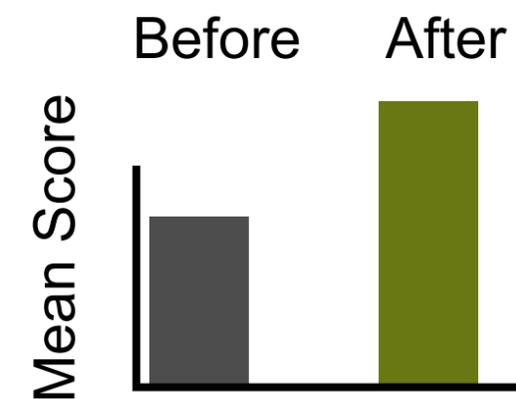
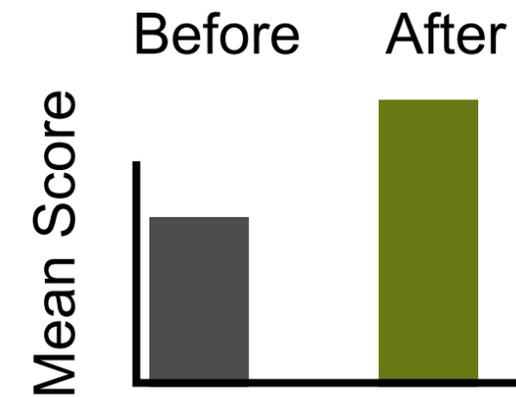
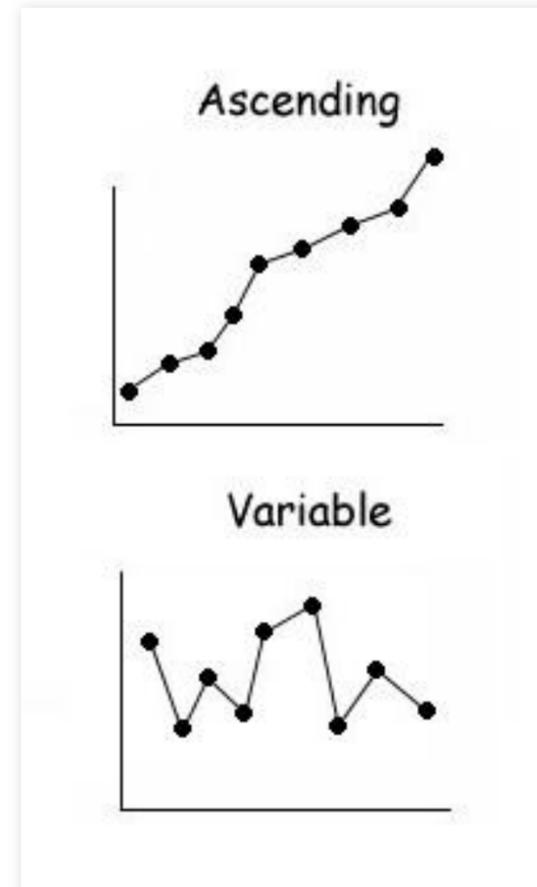
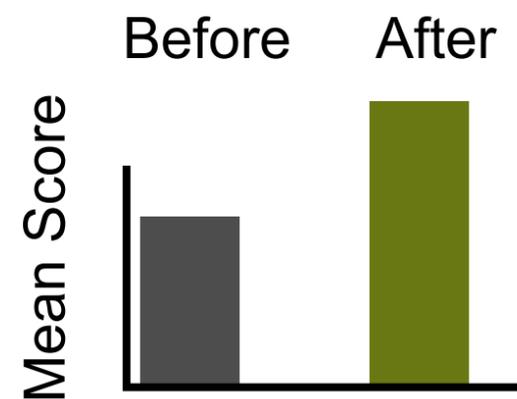
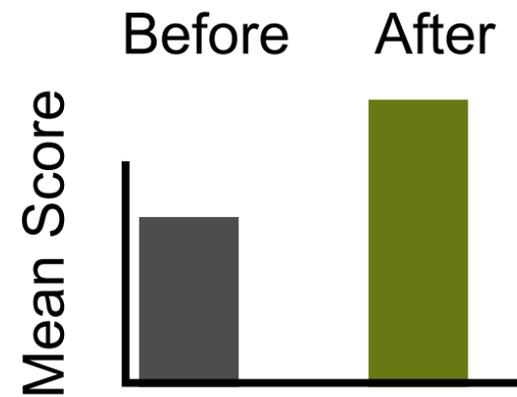
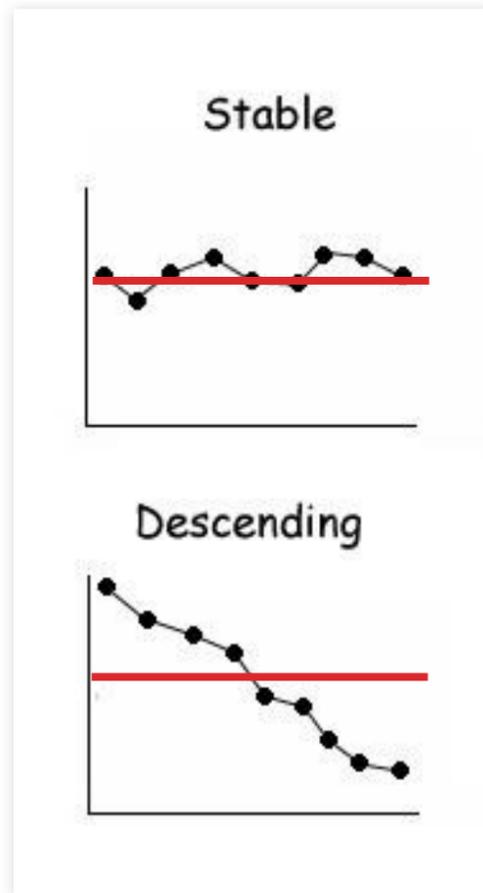
Rates of behavior

- Can be stable
- Can be ascending
- Can be descending
- Can be variable

Plus behavior can be characterized by:

- Duration
- Intensity

Learning to “read” trends versus averages...



Sifting for “gold” versus gravel at different “places”



Places where problem rarely happens

Places where problem happens sometimes

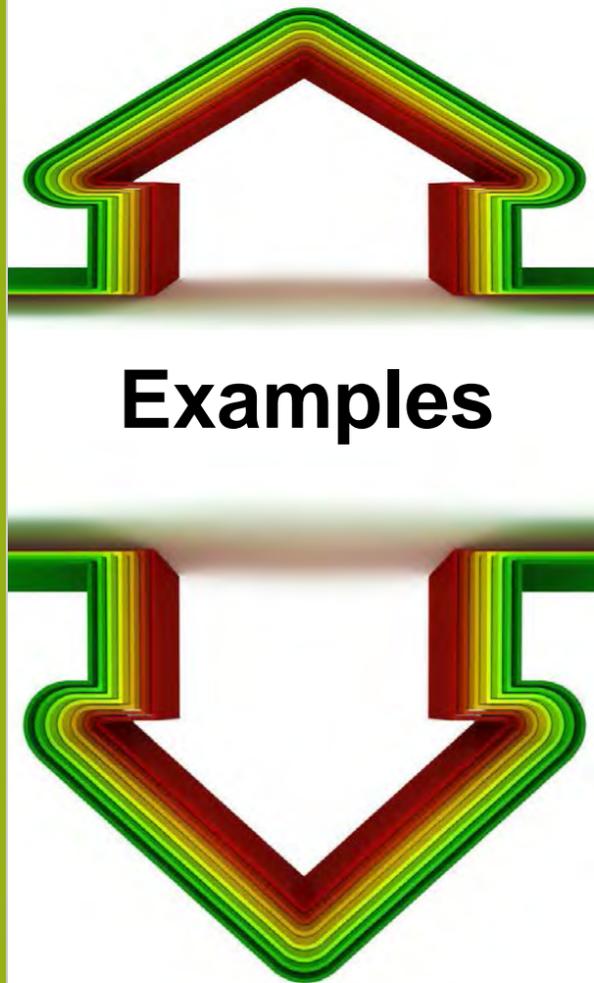
Places where problem often happens

Individuals
Families

Small groups
Organizations
Communities

States/Regions
Nations

Gold Sifting by eco-behavioral assessments



Examples

| Rates of Target Behaviors | Antecedents | Behaviors | Consequences | Relational Frames | Bio-Physiological-Epigenic |
|---------------------------|---|---|---|--|---|
| Low Rate Settings | Physical cues or events before behaviors | Increase or decrease in rate, duration or intensity | After a behavior, increase or decrease future rate, duration or intensity of that behavior | Words altering rate, duration, intensity or generalization of behavior | Extrinsic or internal bio-physical events that change rate, duration or intensity of behavior |
| Medium Rate Settings | | | | | |
| High Rate Settings | | | | | |

What is a kernel?



Is the smallest unit of scientifically proven behavioral influence.



Is indivisible; that is, removing any part makes it inactive.



Produces quick easily measured change that can grow much bigger change over time.



Can be used alone OR combined with other kernels to create new programs, strategies or policies.



Are the active ingredients of evidence-based programs

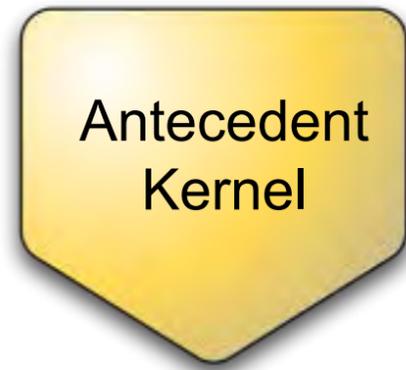


Can be spread by word-of-mouth, by modeling, by non professionals.



Can address historic disparities without stigma, in part because they are also found in cultural wisdom.

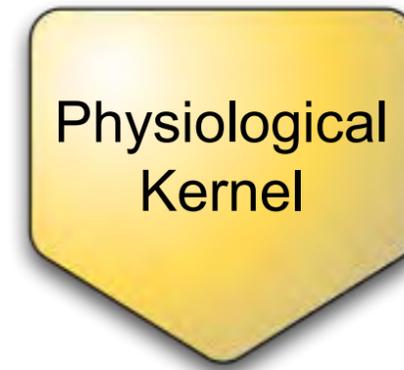




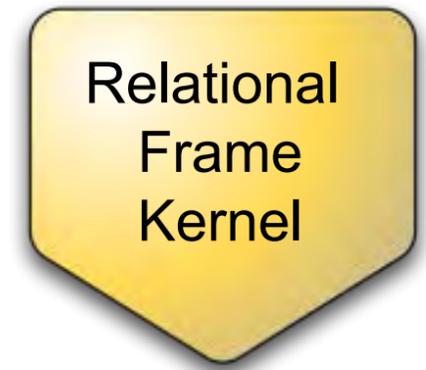
Happens BEFORE
the behavior



Happens AFTER the
behavior



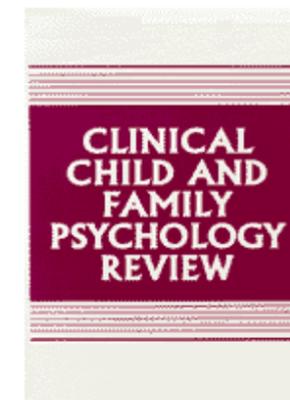
Changes biochemistry
of behavior



Creates verbal
relations for the
behavior

Four Types of Kernels: 52 examples

Embry, D. D., & Biglan, A.
(2008). Evidence-Based
Kernels: Fundamental Units
of Behavioral Influence.
Clinical Child & Family
Psychology Review, 39.



Some key everyday scientist skills

- Counting rate, duration or intensity of behavior
- Graphing/recording behaviors
- Using “repeated measures designs”
- Trying strategy
- Collecting more data
- Graphing/recording changes, if any



Everyday Scientist Test: Withdrawal (**off-on-off-on**) Designs

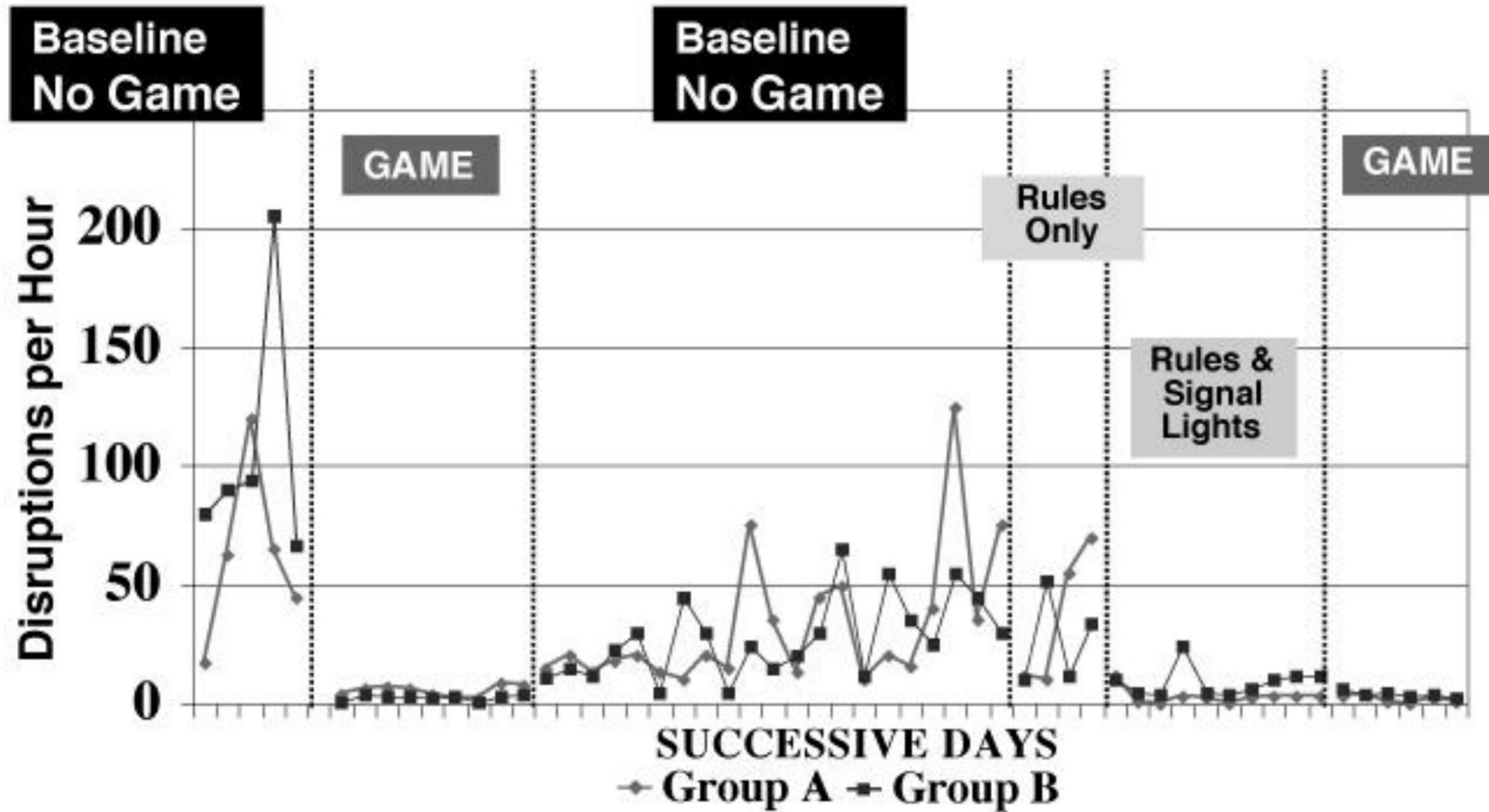
Primary strategy involves the systematic starting and stopping of intervention

Intervention control (internal validity) happens by showing that the target behavior changes as a result of alternation of starting and stopping intervention

Particularly well-suited for intervention involving environmental change strategies

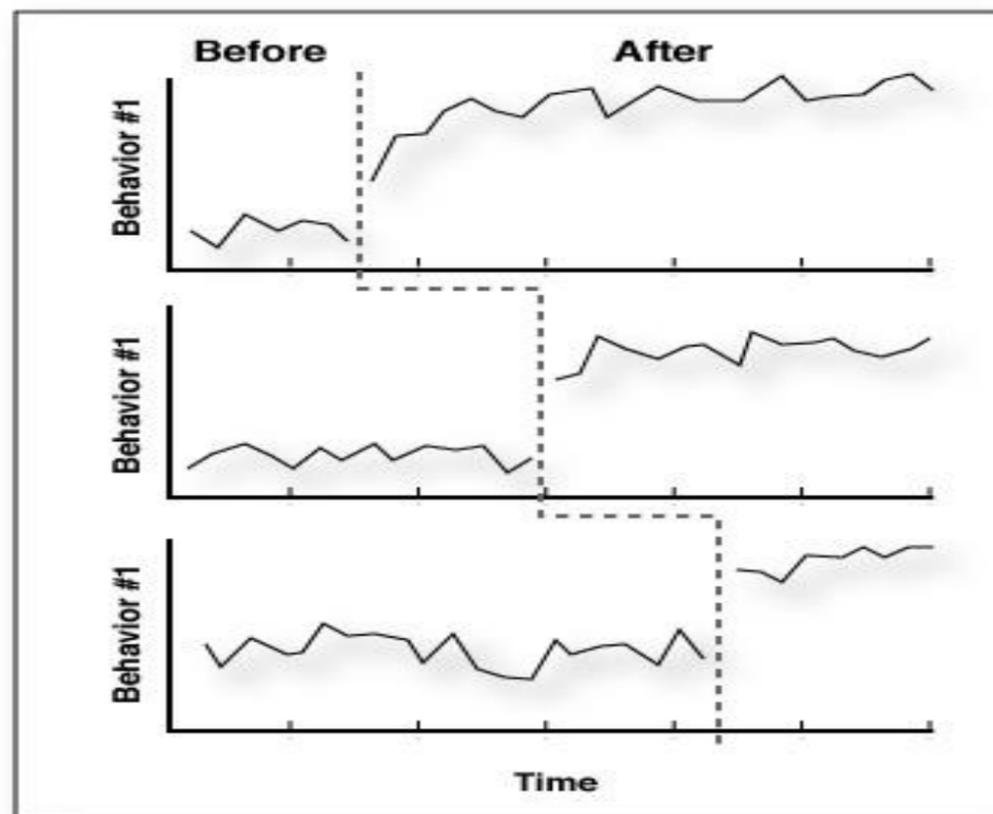


Student Behavior During Reading

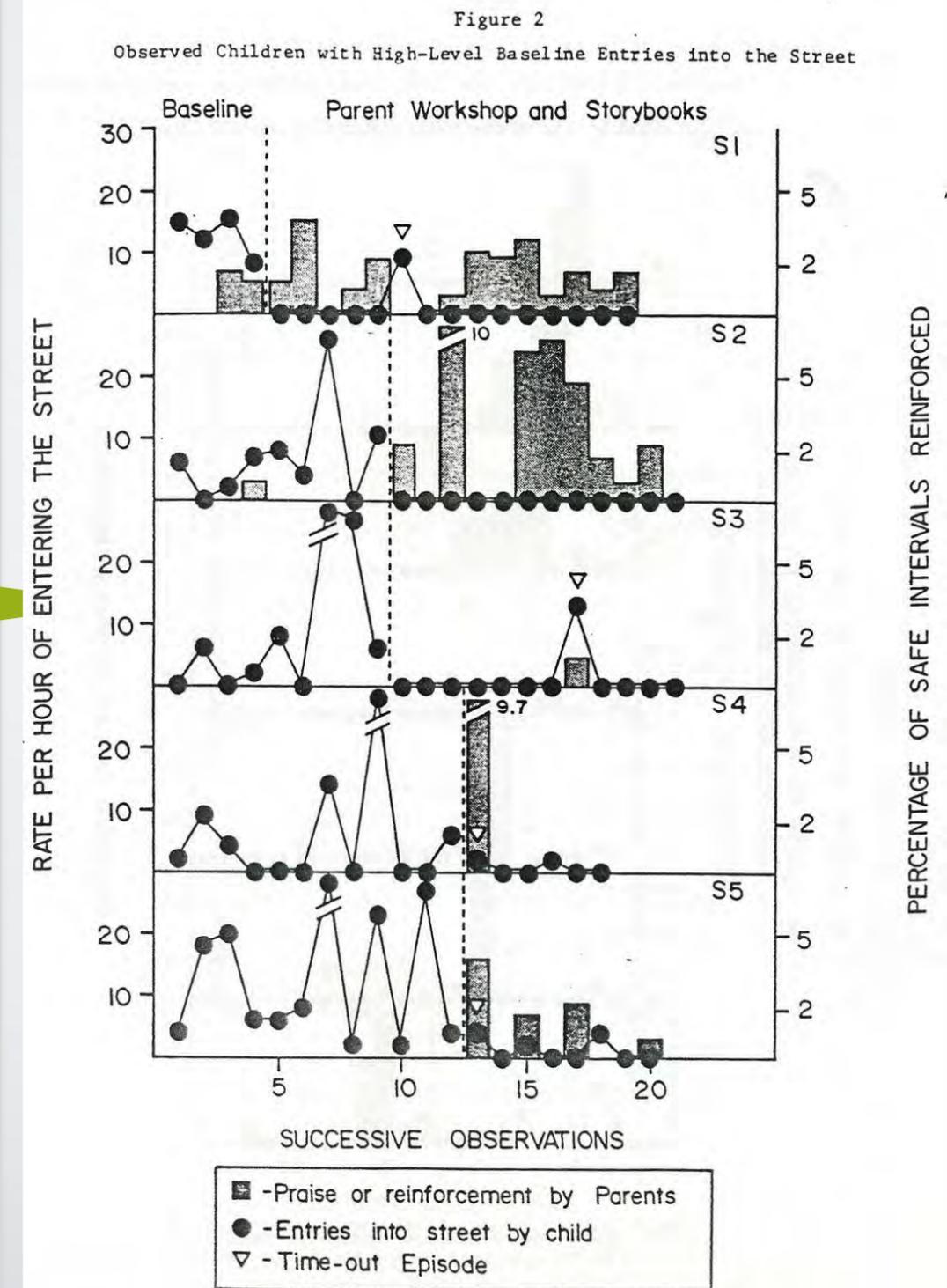


Adapted from Mcland, M.B., & Stachnik, T.J. (1972). Good Behavior Game: A replication and systematic analysis. *Journal of Applied Behavior Analysis*, 3, 45-52

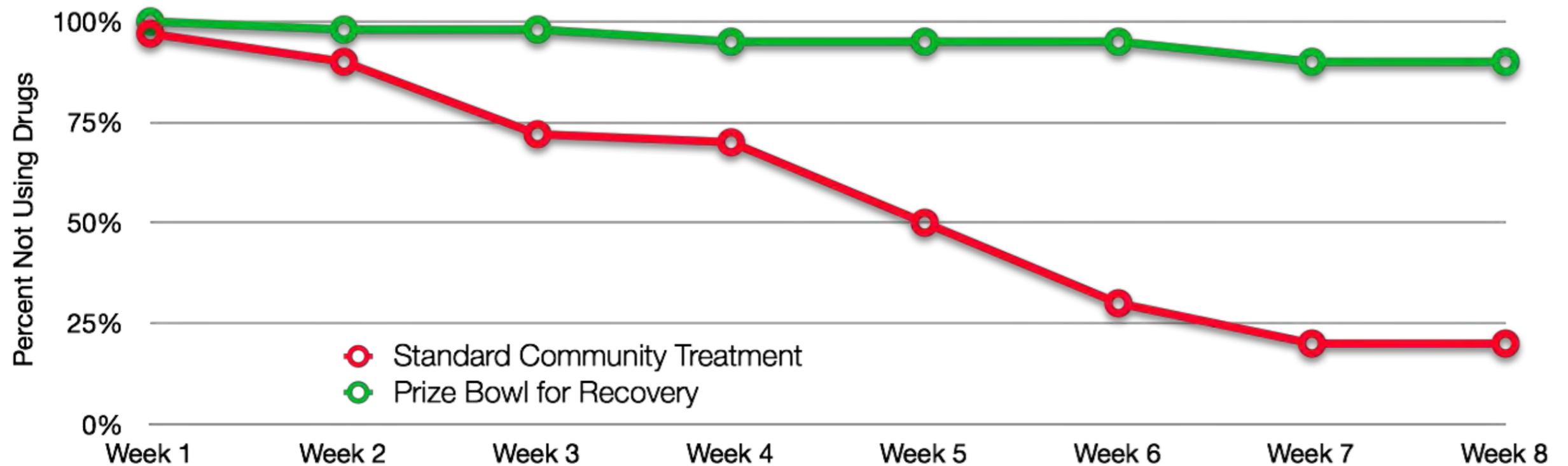
Using multiple-baselines data to monitor and create effective practices



This example teaches children and parents how to do safety skills often lacking families with difficulties.



Survival analysis to show long-term advantage of a strategy



Evidence-based Kernels: Fundamental Units of Behavioral Influence

Dennis D. Embry · Anthony Biglan

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Abstract This paper describes evidence-based kernels, fundamental units of behavioral influence that appear to underlie effective prevention and treatment for children, adults, and families. A kernel is a behavior-influence procedure chosen through experimental analysis to affect a specific behavior. This paper presents an analysis of fundamental units of behavioral influence that underlie effective prevention and treatment. We call these units *kernels*. They have two defining features. First, in experimental analysis, researchers have found them to have a reliable effect on

ARTICLE

COMMUNITY-BASED PREVENTION USING SIMPLE, LOW-COST, EVIDENCE-BASED KERNELS AND BEHAVIOR VACCINES

Dennis D. Embry
PAXIS Institute

A paradigm exists in community presentation of violence and drugs. Good

Behavioral Vaccines and Evidence-Based Kernels: Nonpharmaceutical Approaches for the Prevention of Mental, Emotional, and Behavioral Disorders

Dennis D. Embry, PhD

KEYWORDS

Basic understanding of kernels

Embry, D. D. and A. Biglan (2008). "Evidence-Based Kernels: Fundamental Units of Behavioral Influence." *Clinical Child & Family Psychology Review* 11(3): 75-113.

Using kernels for population change

Embry, D. D. (2004). "Community-Based Prevention Using Simple Low-Cost, Evidence-Based Kernels and Behavior Vaccines." *Journal of Community Psychology* 32(5): 575.

Behavioral vaccines for disease control

Embry, D. D. 2011. Behavioral vaccines and evidence-based kernels: non-pharmaceutical approaches for the prevention of mental, emotional, and behavioral disorders. *Psychiatr Clin North Am* 34 (1):1-34.





Lessons for the day
and future

for a longer more detailed version of
this, please check out:

www.slideshare.net/drdeniseembry

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