Positive Behavior Support: Extending Applied Behavior Analysis at Scales of Social Importance

Rob Horner
University of Oregon

www.pbis.org

Goals

- The importance of going to scale
- Six features for taking behavioral technology to scale
- Define "implementation" as a unique technology.
- Use School-wide Positive Behavior Support as one example

Taking Behavior Analysis to Scales of Social Significance

- The value of a science of human behavior
  - Basic principles that help us describe, interpret and establish effective patterns of behavior

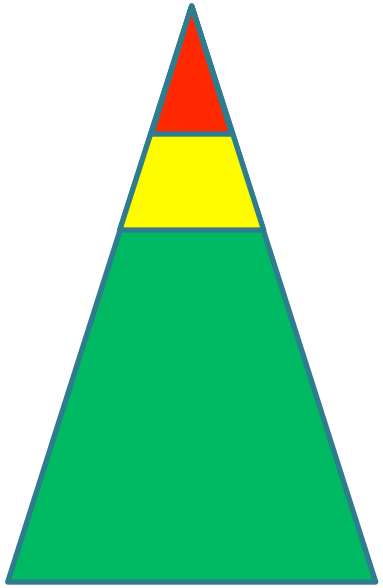
- While behavior analysis is among the most powerful approaches for achieving social change, too often ABA is viewed as relevant only within a narrow range of applications
    - (***we are a niche or boutique technology***)

Key Features to Achieve Large-scale Implementation of Behavior Analysis

- 1. Focus on **comprehensive outcomes** defined by the values of the social system
- 2. Expand the **unit of analysis**
- 3. Measure **process** as well as outcome
- 4. Use ABA principles to build **effective and accessible practices**
- 5. Establish a technology for **implementation**
- 6. Define practices for **scaling up** practices that are evidence-based.

School-wide PBS

- Build a continuum of supports that begins with the **whole school** and extends to intensive, wraparound support for individual students and their families.



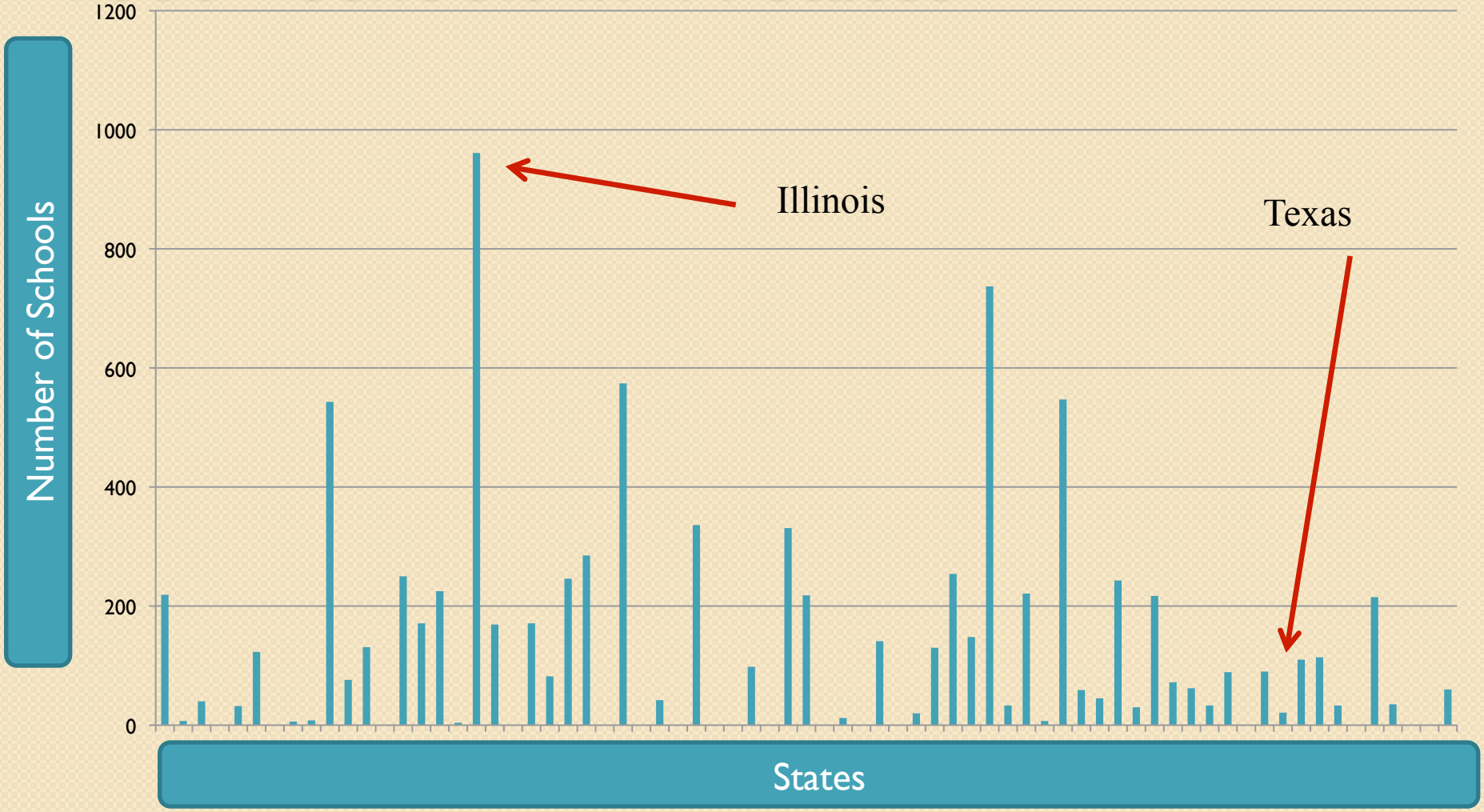
What is School-wide Positive Behavior Support?

- School-wide PBS is:
  - A **systems approach** for establishing the **social culture** and individualized behavioral supports needed for schools to achieve both social and academic success while preventing problem behavior
- Evidence-based features of SW-PBS
  - Prevention
  - Define and teach positive social expectations
  - Acknowledge (reward) positive behavior
  - Arrange consistent consequences for problem behavior
  - On-going collection and use of data for decision-making
  - Continuum of intensive, individual interventions.
  - Administrative leadership – Team-based implementation (Systems that support effective practices)

School-wide Positive Behavior Support: Current Implementation

- School-wide Positive Behavior Support
- 9000 schools in 44 states
  - Team
  - Coach
  - Curriculum emphasizing prevention: Define and teach appropriate social behavior to all students
  - Formal system for rewarding appropriate behavior
  - Intensive, individual interventions based on behavioral function
  - On-going data collection and use of data for active decision-making

States Implementing SWPBS
9000+ schools in 44 states

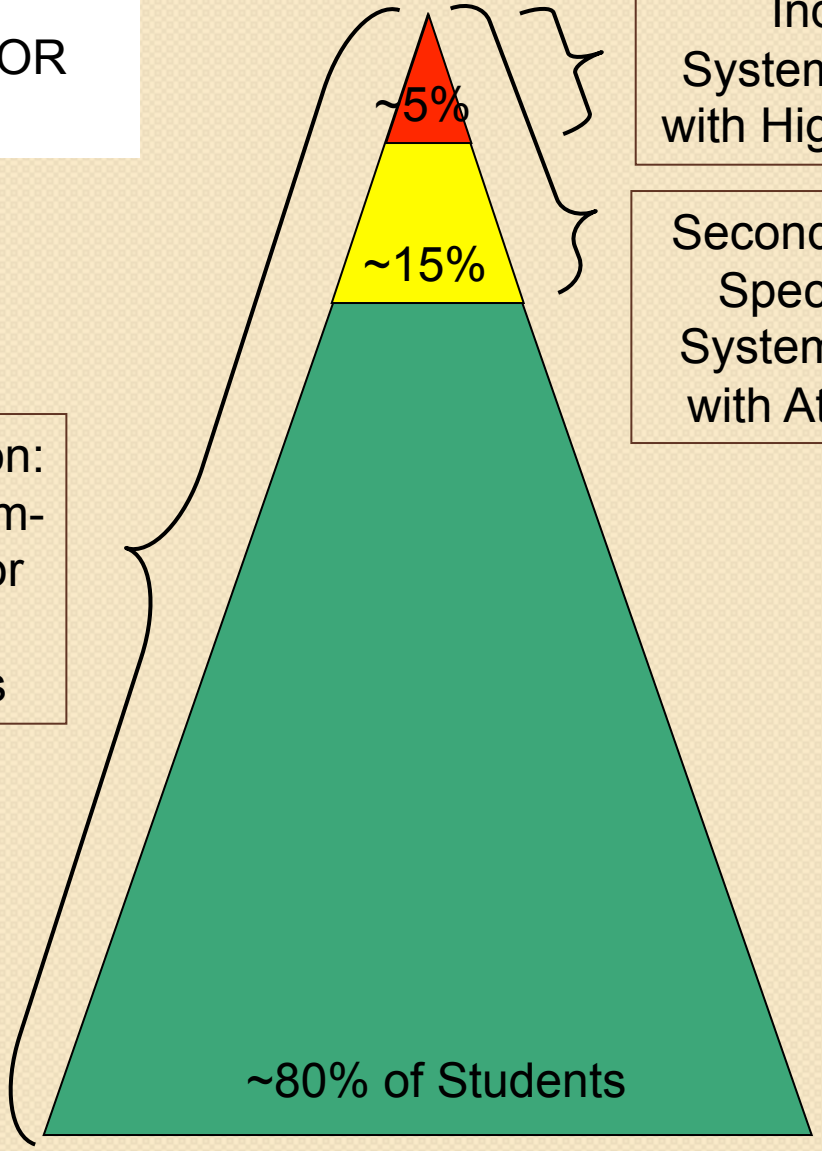


SCHOOL-WIDE
POSITIVE BEHAVIOR
SUPPORT

Tertiary Prevention:
Specialized
Individualized
Systems for Students
with High-Risk Behavior

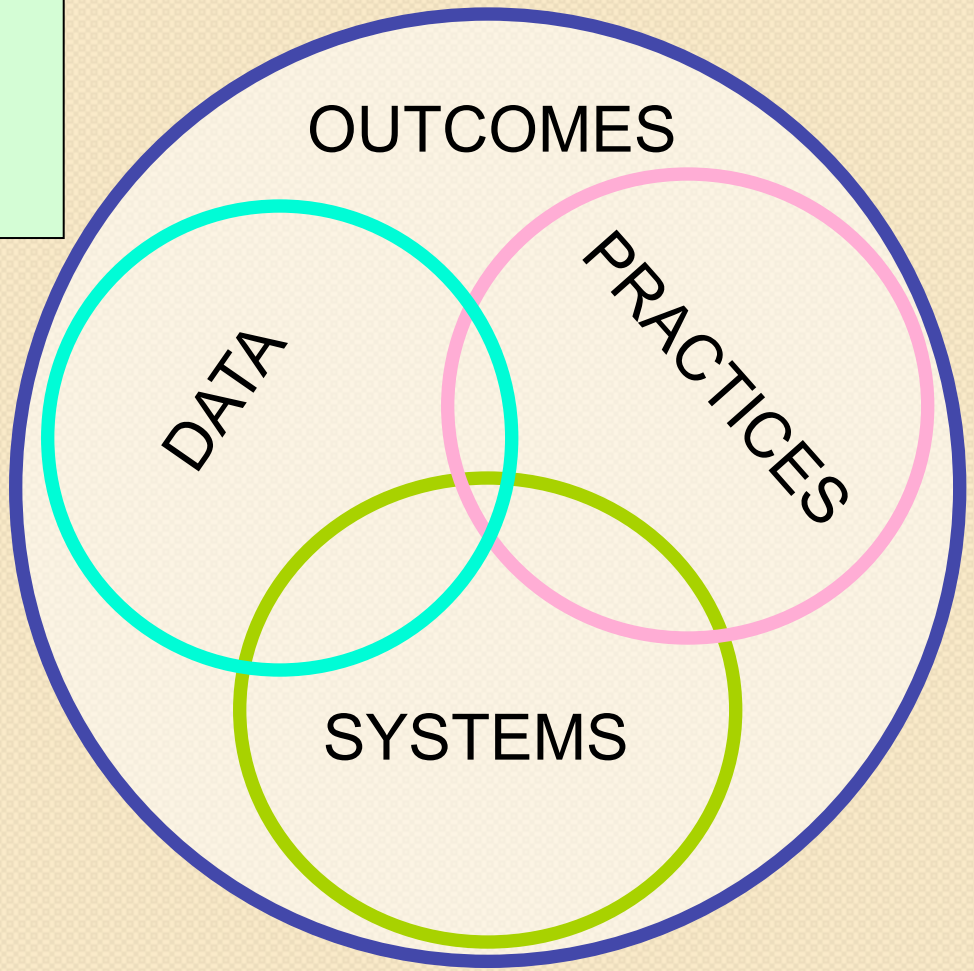
Secondary Prevention:
Specialized Group
Systems for Students
with At-Risk Behavior

Primary Prevention:
School-/Classroom-
Wide Systems for
All Students,
Staff, & Settings



School-wide PBS

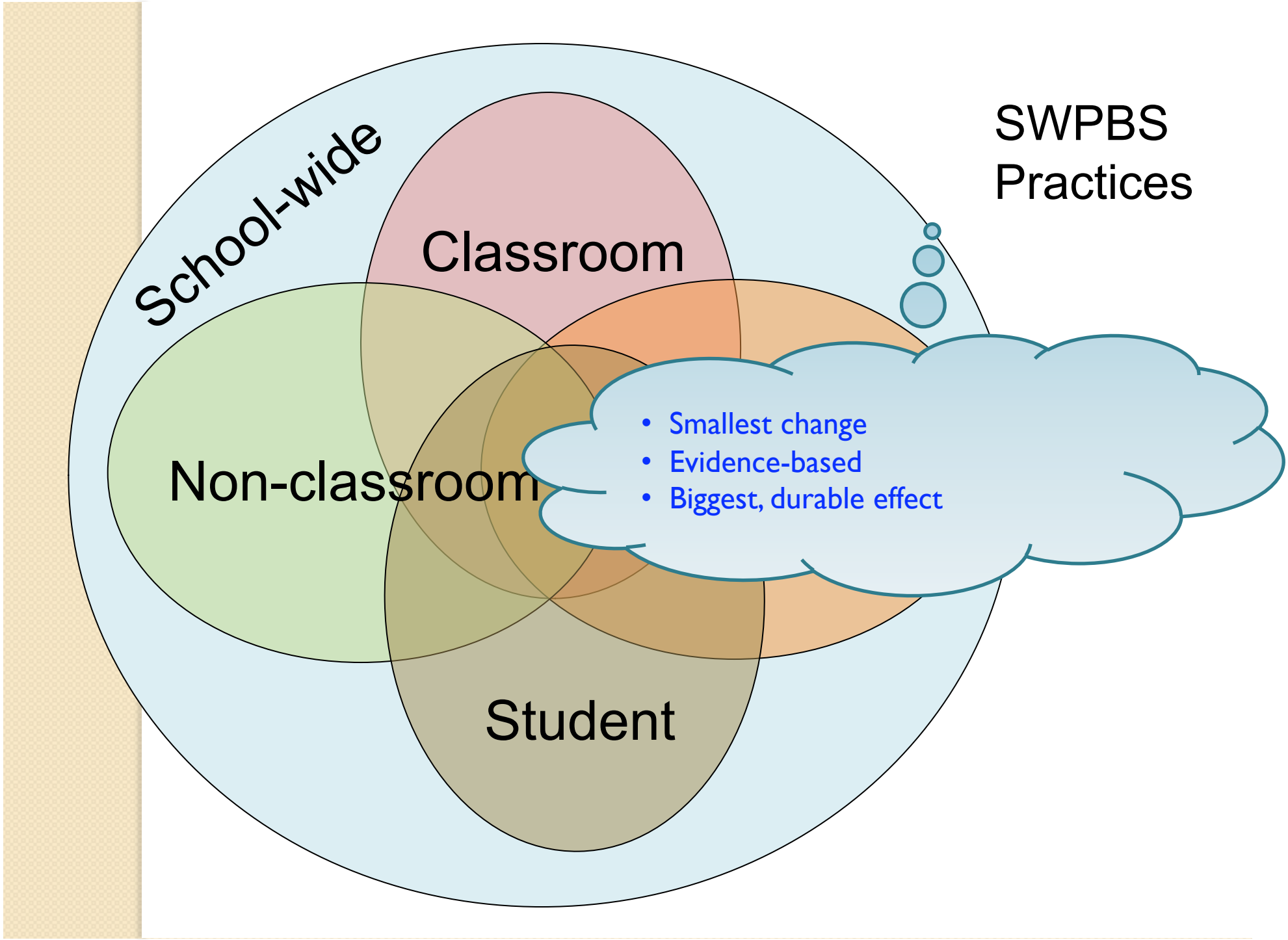
Supporting Social Competence, Academic Achievement and Safety



Supporting Student Behavior

Supporting Decision Making

Supporting Staff Behavior


School-wide
Classroom
Non-classroom
Student
SWPBS
Practices
• Smallest change
• Evidence-based
• Biggest, durable effect

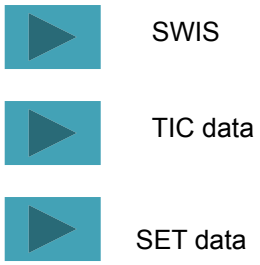
Define School-wide Expectations for Social Behavior

- Identify 3-5 Expectations
- Short statements
- Positive Statements (what to do, not what to avoid doing)
- Memorable
- Examples:
  - Be Respectful, Be Responsible, Be Safe, Be Kind, Be a Friend, Be-there-be-ready, Hands and feet to self, Respect self, others, property, Do your best, Follow directions of adults

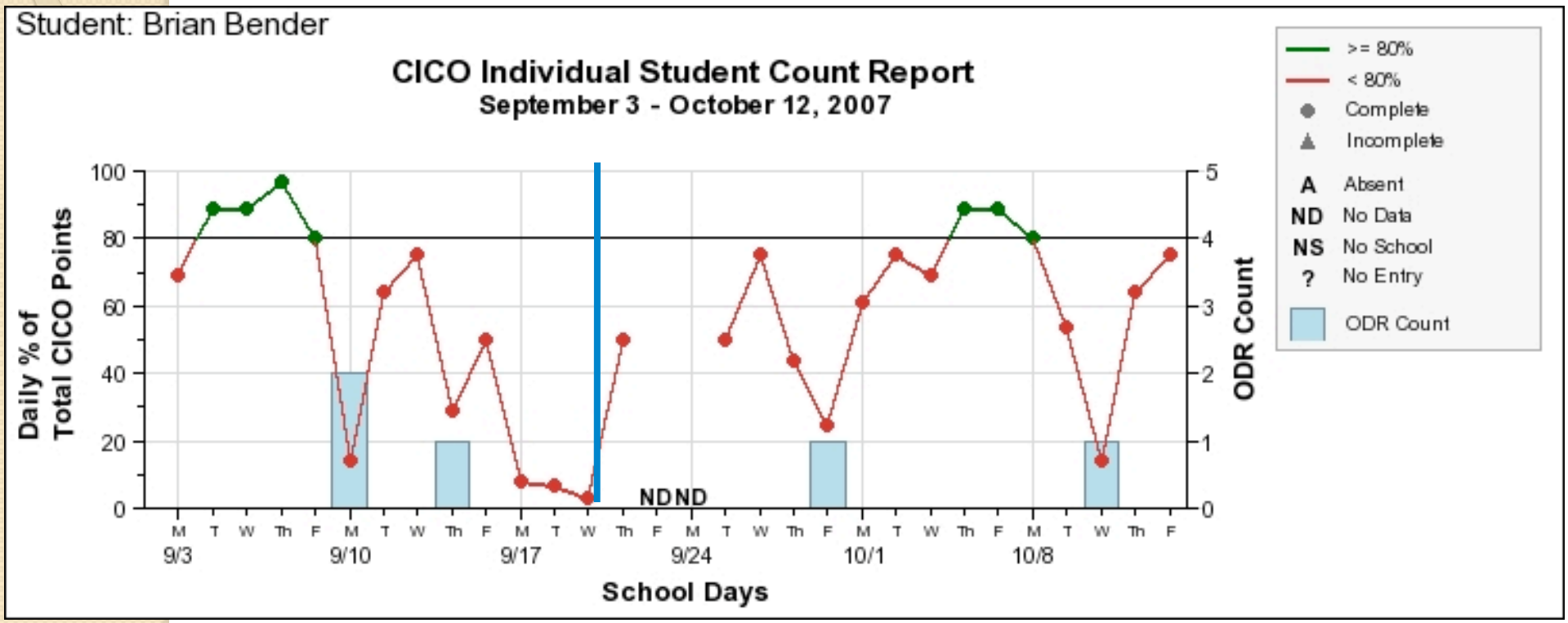
School-wide PBS

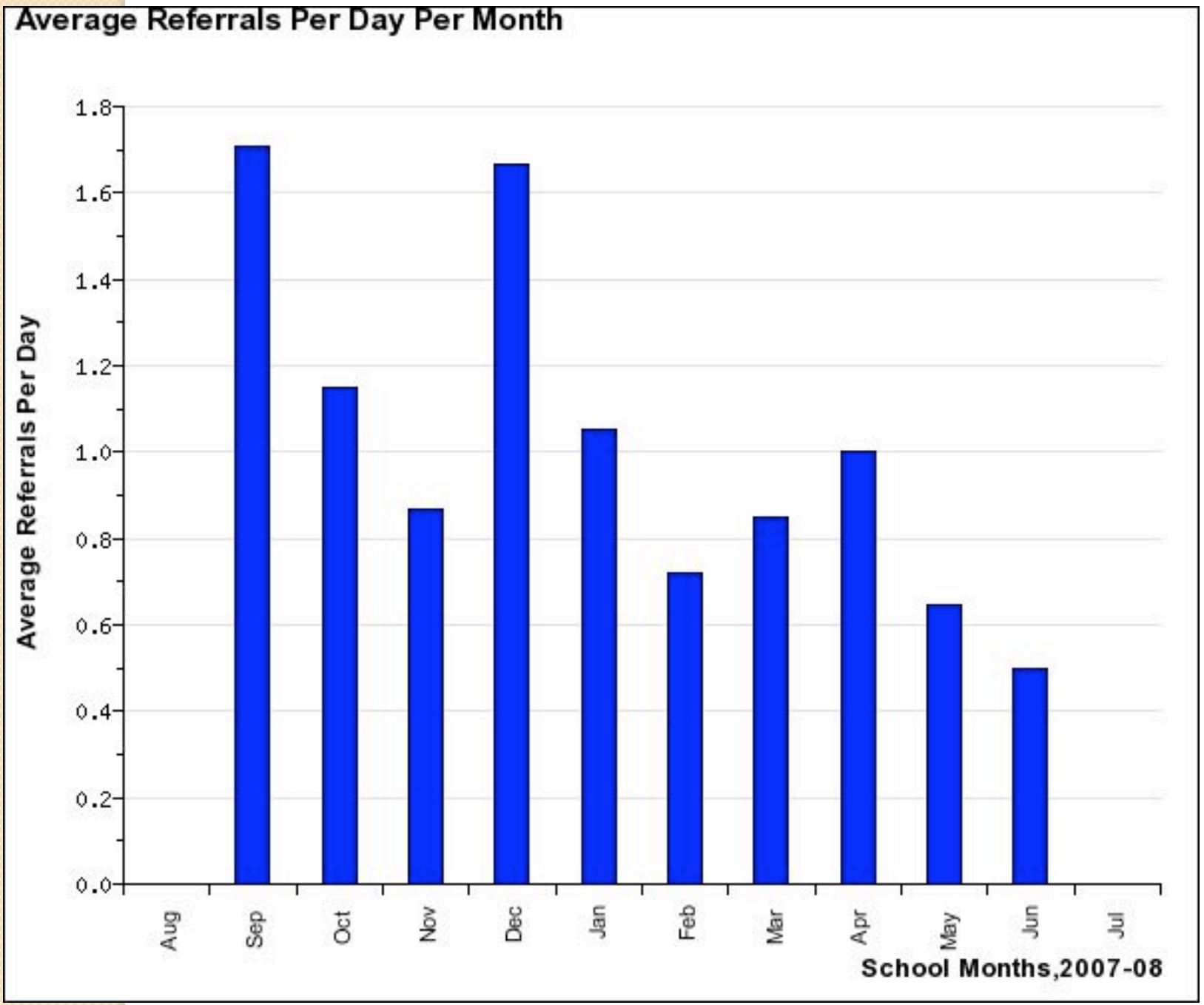
- 3. Measurement/ Evaluation
  - Include both **process and outcome** measures
    - Outcomes: Office Discipline Referrals/Academics
    - Process (implementation): Team Checklist
    - Research: System-wide Evaluation Tool (SET)

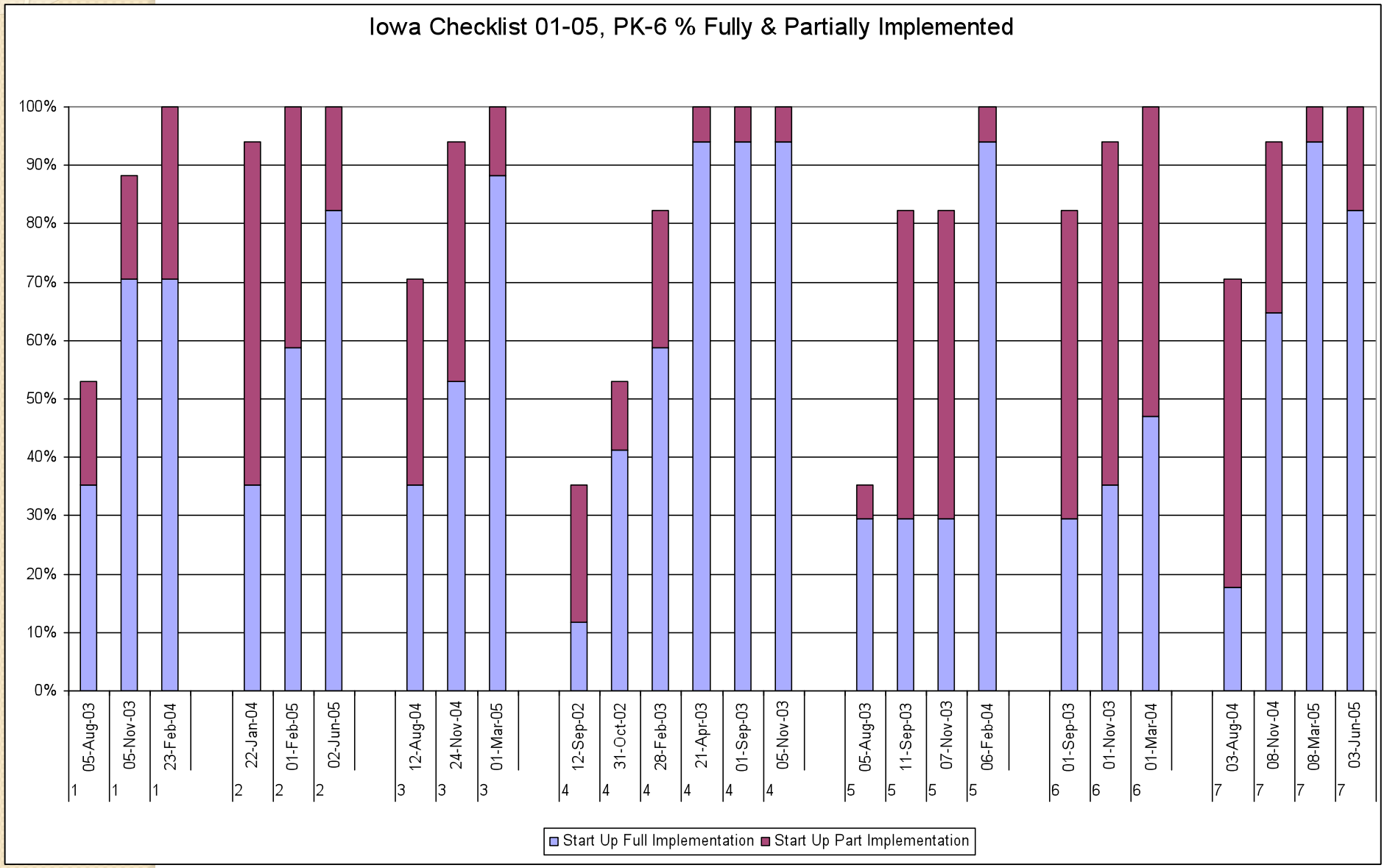
	Comprehensive Measures	**Progress Monitoring Measures**
Fidelity Measures	XX	XX
Outcomes Measures	XX	XX (ABA)



Student: Brian Bender




Average Referrals Per Day Per Month
Average Referrals Per Day
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
School Months,2007-08


Iowa Checklist 01-05, PK-6 % Fully & Partially Implemented
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1 05-Aug-03
1 05-Nov-03
1 23-Feb-04
2 22-Jan-04
2 01-Feb-05
2 02-Jun-05
3 12-Aug-04
3 24-Nov-04
3 01-Mar-05
4 12-Sep-02
4 31-Oct-02
4 28-Feb-03
4 21-Apr-03
4 01-Sep-03
4 05-Nov-03
5 05-Aug-03
5 11-Sep-03
5 07-Nov-03
5 06-Feb-04
6 01-Sep-03
6 01-Nov-03
6 01-Mar-04
7 03-Aug-04
7 08-Nov-04
7 08-Mar-05
7 03-Jun-05
Start Up Full Implementation
Start Up Part Implementation

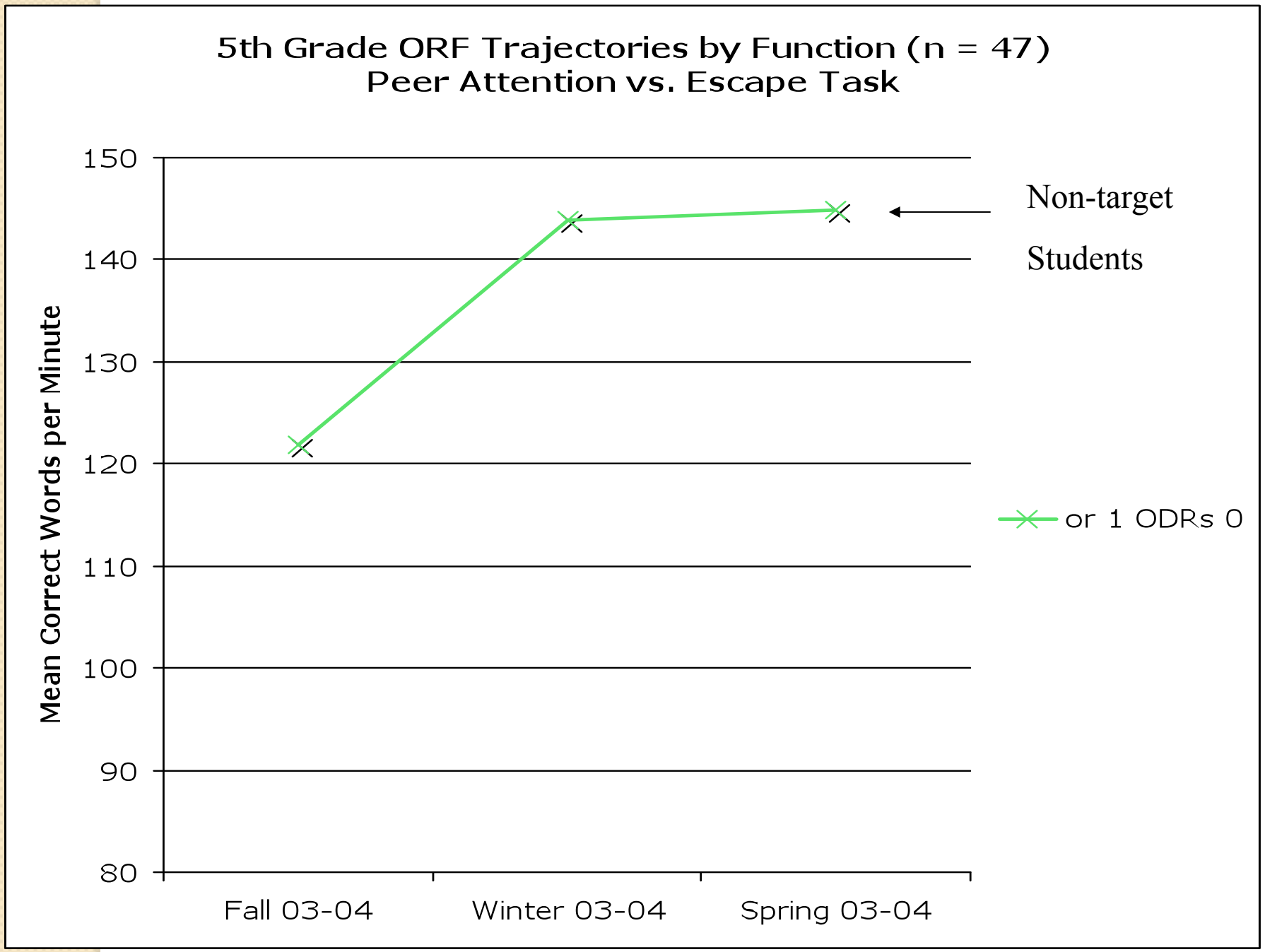
School-wide PBS

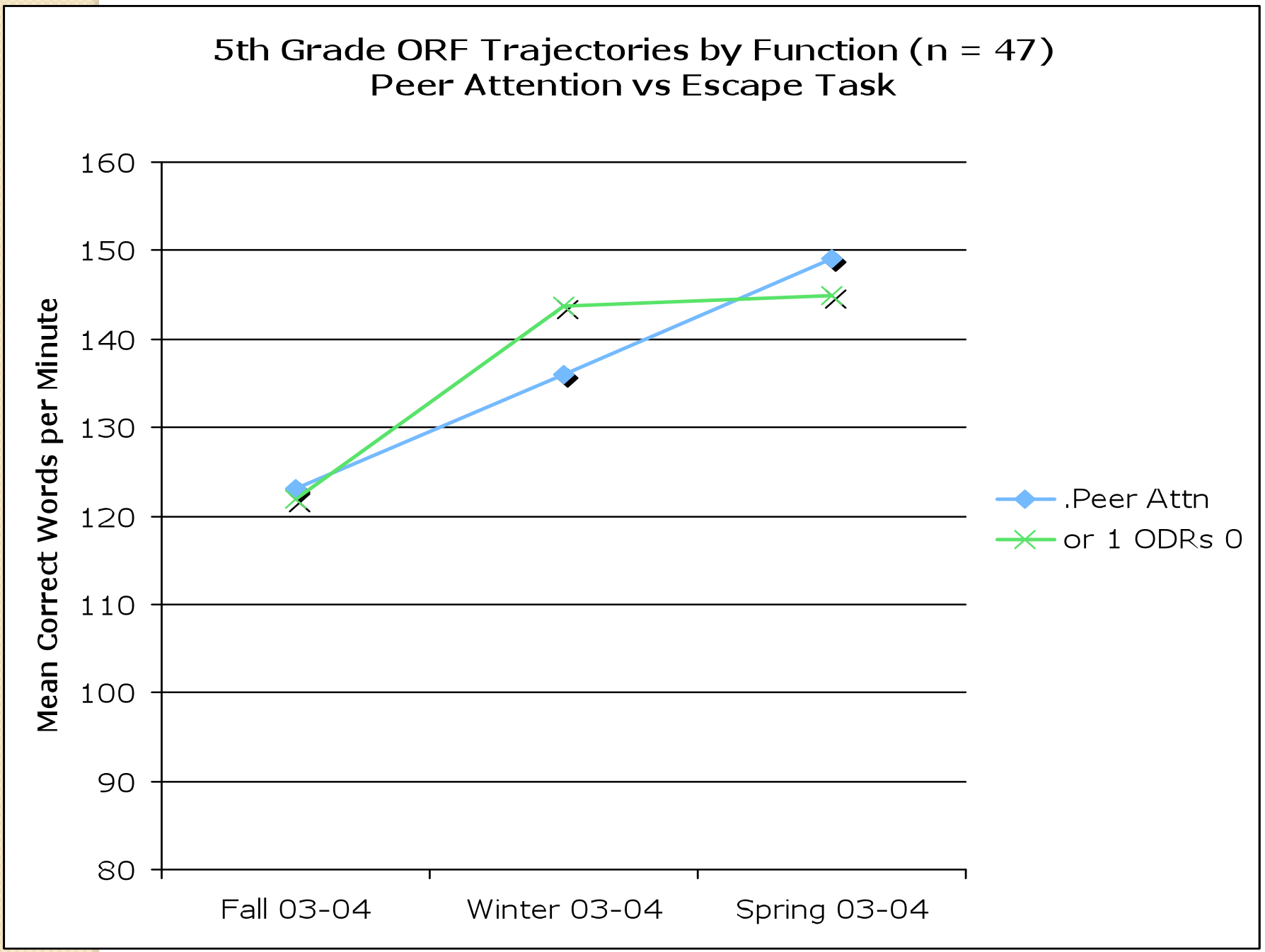
- 4. Use ABA principles to Establish Accessible Evidence-based Practices
  - Use the language of the implementation context
  - Combine technologies needed to achieve valued outcomes.
    - ABA + Person-centered planning + Organizational Systems + Bio-Medical
  - Collaborate with other disciplines
    - Mental Health, Juvenile Justice, School Psychology, Sociology
  - Use Single-case Designs to Document Evidence-based Practices

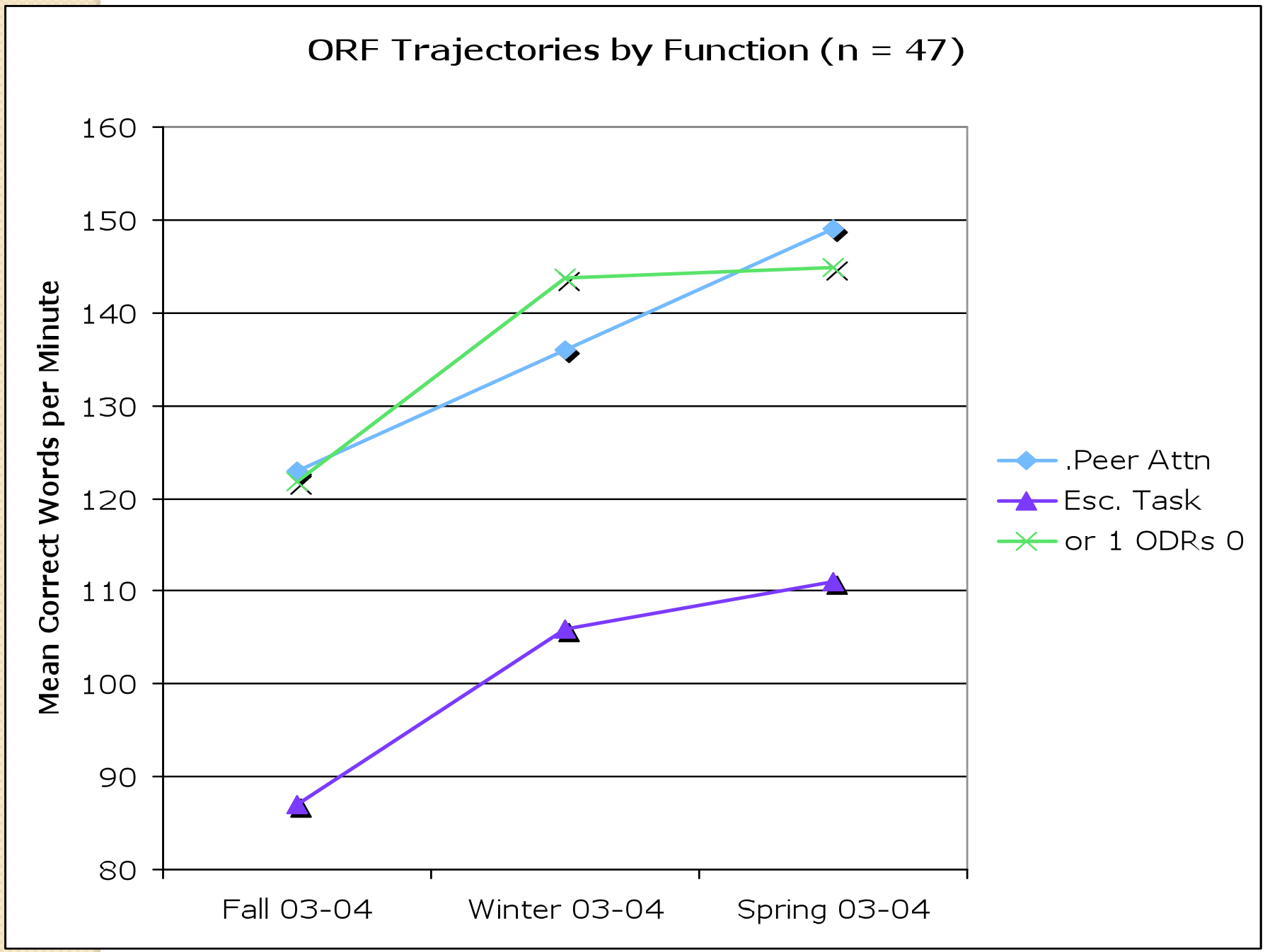
Academic, Behavioral, and Functional Predictors of Chronic Problem Behavior in Elementary Grades

Kent McIntosh

University of Oregon


5th Grade ORF Trajectories by Function (n = 47)
Peer Attention vs. Escape Task
Mean Correct Words per Minute
150
140
130
120
110
100
90
80
Fall 03-04
Winter 03-04
Spring 03-04
Non-target
Students
or 1 ODRs 0


5th Grade ORF Trajectories by Function (n = 47)
Peer Attention vs Escape Task
Mean Correct Words per Minute
160
150
140
130
120
110
100
90
80
Fall 03-04
Winter 03-04
Spring 03-04
.Peer Attn
or 1 ODRs 0


ORF Trajectories by Function (n = 47)
Mean Correct Words per Minute
160
150
140
130
120
110
100
90
80
Fall 03-04
Winter 03-04
Spring 03-04
.Peer Attn
Esc. Task
or 1 ODRs 0

Impact of Matching Academic Expectations to Academic Skills on Problem Behavior

Amanda Sanford

Research Question

- Is there a functional relationship between escape-maintained problem behavior and matching academic expectations to the reading skill level of a student?

Participants

- Three 3rd and 4th grade students with problem behavior during reading.
- Functional Behavioral Assessment (FACTS) indicated problem behavior was maintained by escape from academic tasks.
- DIBELS scores indicated at-risk levels.

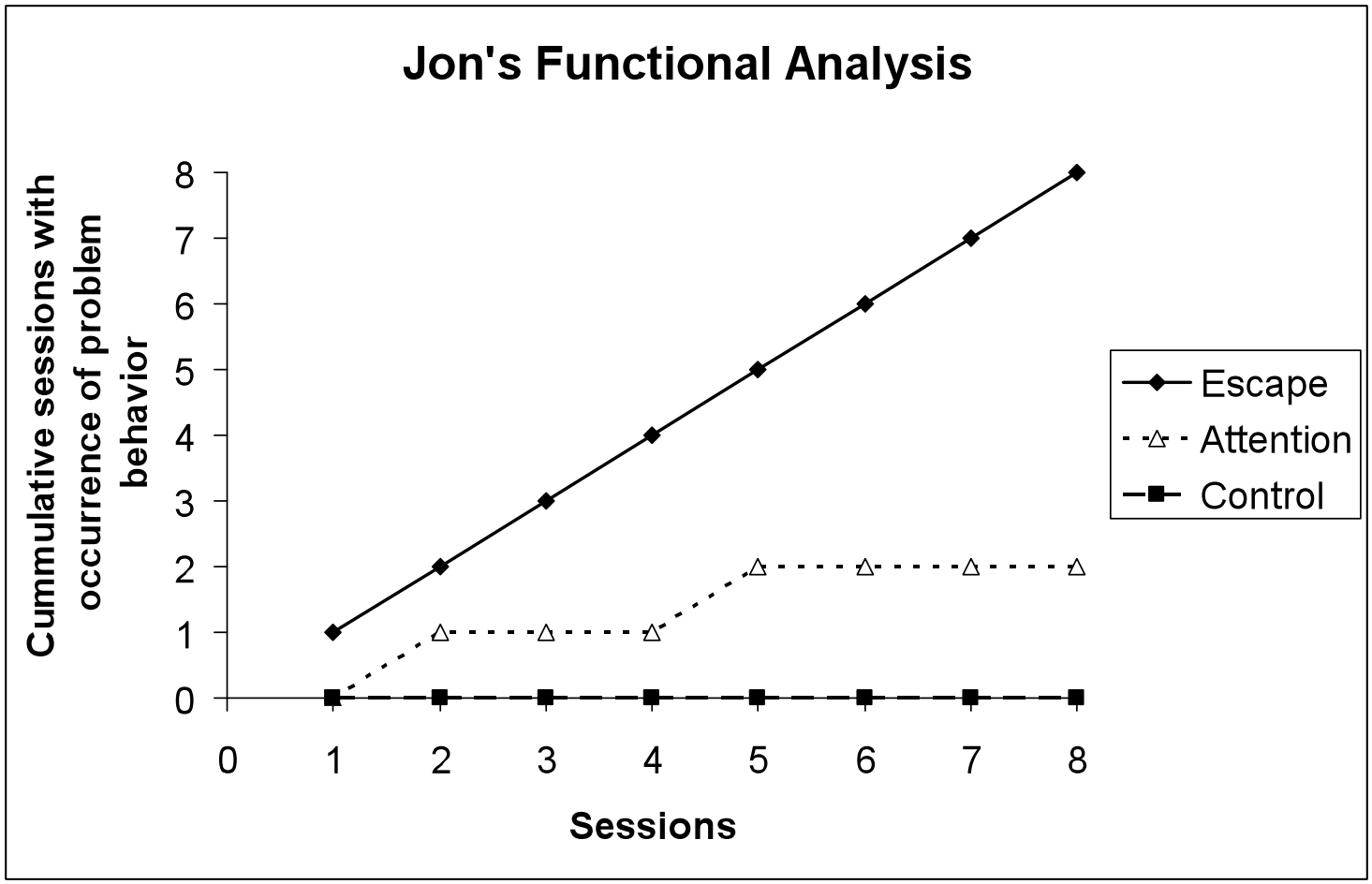
Measurement

- Partial interval direct observation of problem behavior
- Problem behavior:
  - Out of seat, hitting, throwing, teasing, talking
- IOA = 91%

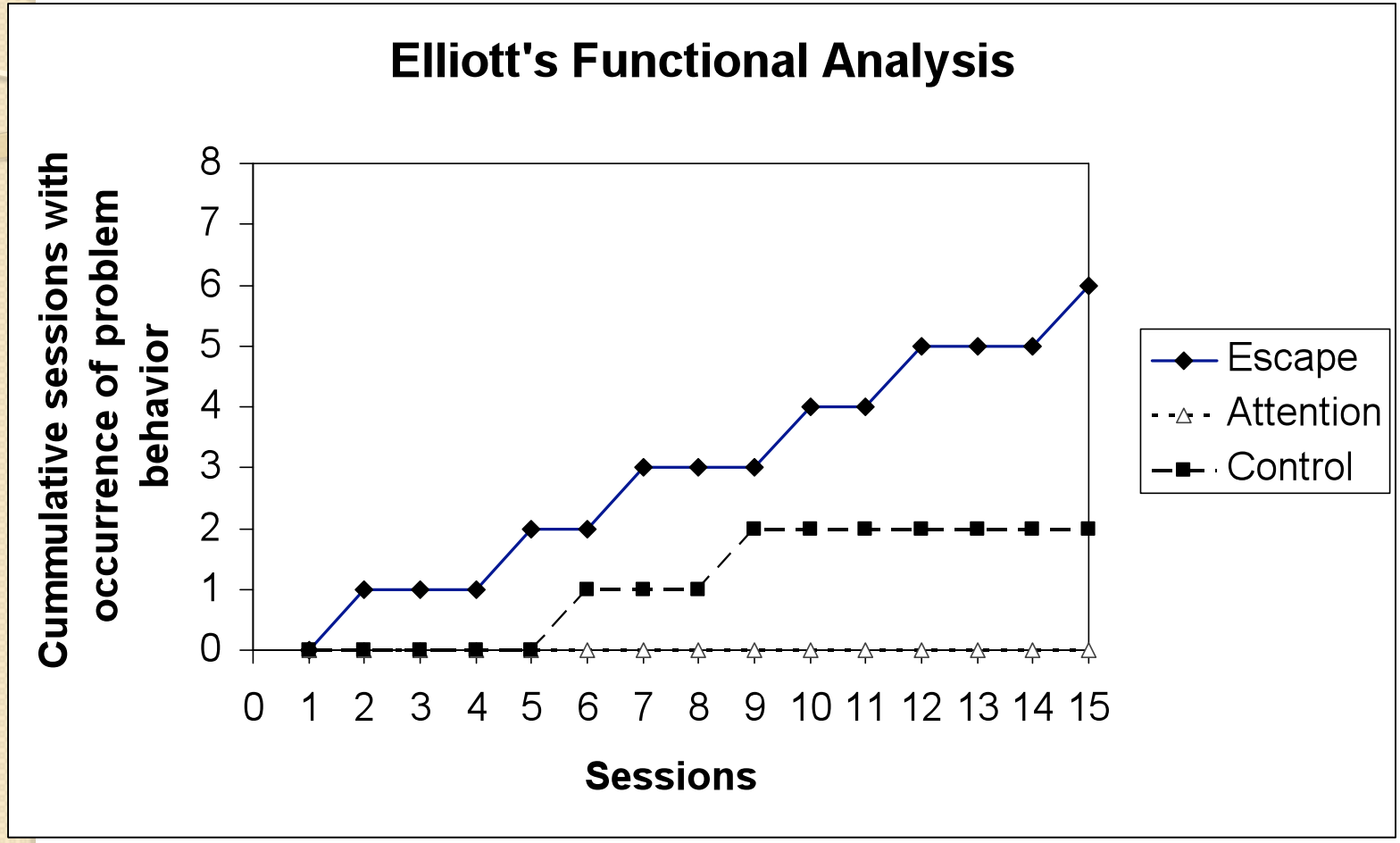
Research Design

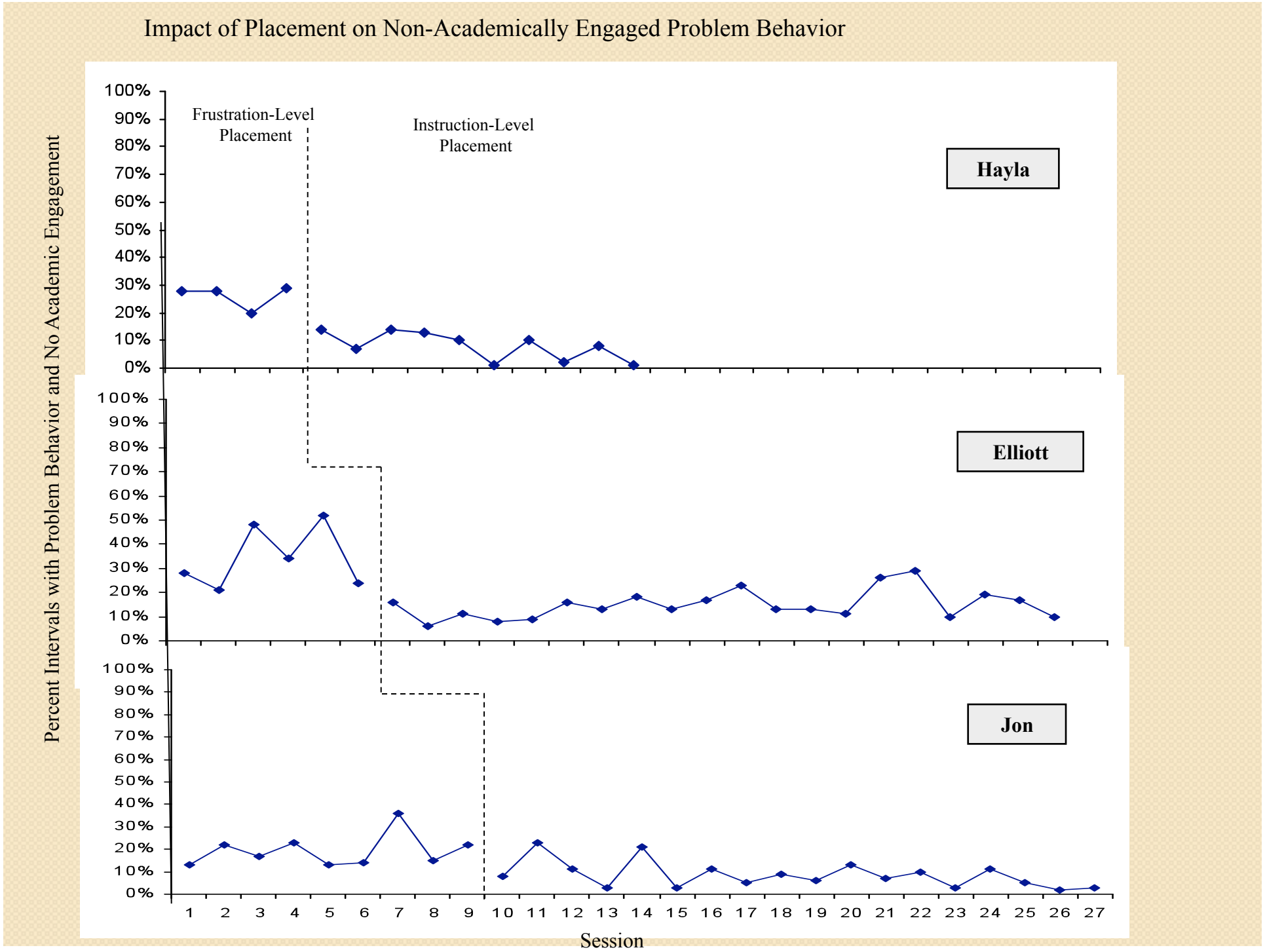
- Multiple baseline across participants
  - Baseline
  - Academic Matching
    - Using DIBELS scores, the placement of the students in their reading program was adjusted to ensure that they were placed at a level where they were achieving 90% success. Placement was assessed every two weeks.

Research Design: Functional Analysis



Research Design: Functional Analysis




Impact of Placement on Non-Academically Engaged Problem Behavior
Percent Intervals with Problem Behavior and No Academic Engagement
Frustration-Level Placement
Instruction-Level Placement
Hayla
Elliott
Jon
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
Session

Using a function-based behavior support to decrease problem behaviors and increase academic reading engagement for Latino English language learners

Jorge Preciado and Rob Horner

Research Question

- Is there a functional relationship between academic priming for children who are English Language Learners, and decreases in problem behavior during academic instruction?

Participants

- Four 3rd, 4th grade children
- Low DIBELS scores (at-risk)
- Low IDEL scores (at-risk)
- Spanish as first language

- Functional behavioral assessment defined ESCAPE as maintaining function.

Measurement

- Partial interval direct observation by trained observers.
- IOA met or exceeded 85% for all sessions
- Problem Behavior
  - Out of seat
  - Talking to others
  - Teasing others
  - Hitting others
  - Throwing objects

Research Design

- Multiple Baseline Across 4 Participants
  - Baseline
  - Instructional Priming

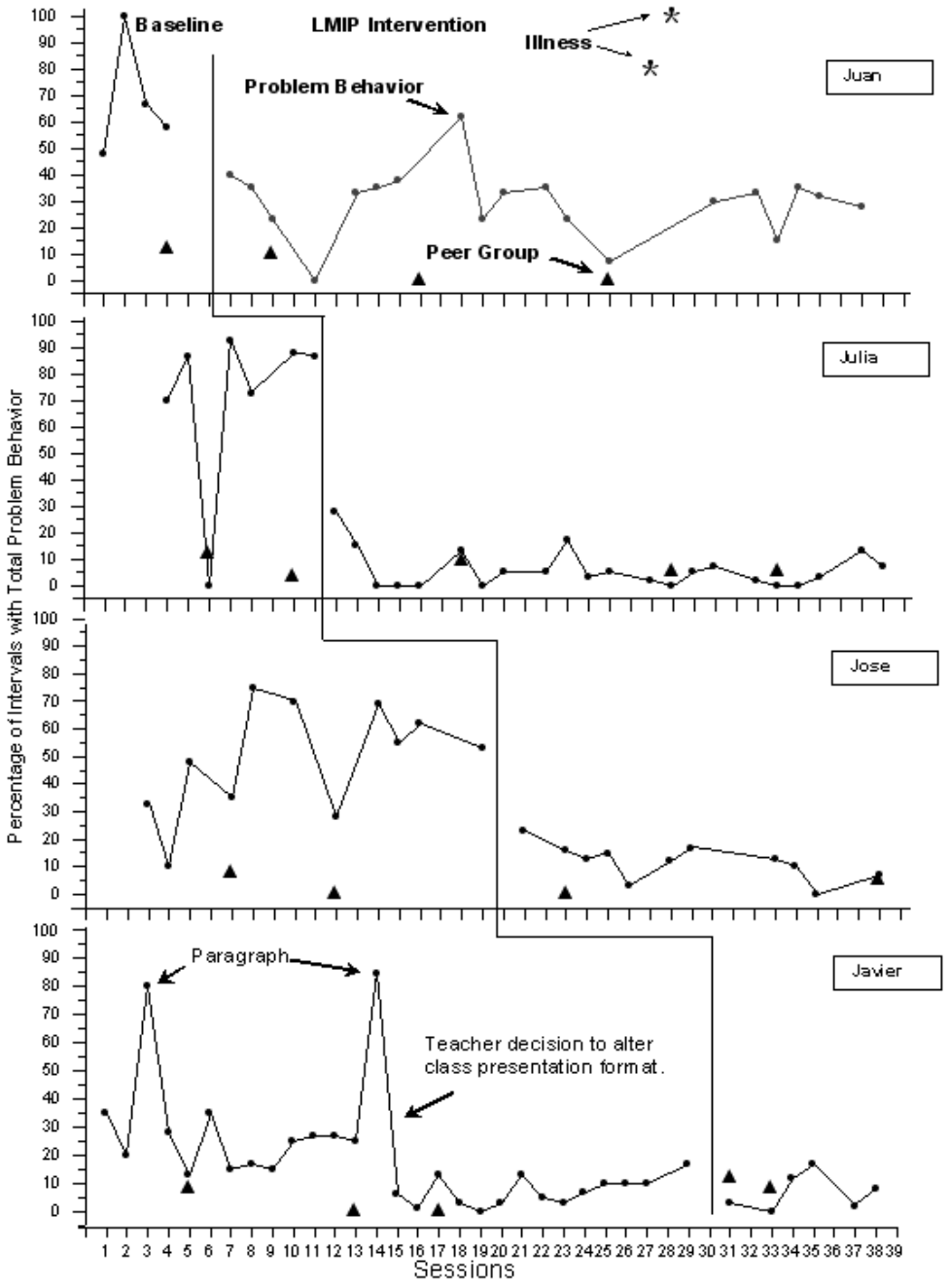
Instructional Priming

- 20 minutes priming on the day prior to reading instruction. Instruction provided by a bi-lingual instructor (volunteer from community).

- Priming included
  - Review of story line
  - Review of vocabulary
  - Review of activity instructions

Results

- Reduction in problem behavior
- Implications
  - Link between academic skill and problem behavior
  - Behavior support for students with escape-maintained problem behavior will often require academic intervention


Baseline
LMIP Intervention
Illness
Problem Behavior
Peer Group
Juan
Julia
Jose
Javier
Paragraph
Teacher decision to alter class presentation format.
Percentage of Intervals with Total Problem Behavior
Sessions

School-wide PBS

- 4. Use ABA principles to Establish Accessible Evidence-based Practices
  - Use the language of the implementation context
  - Combine technologies needed to achieve valued outcomes.
    - ABA + Person-centered planning + Organizational Systems + Bio-Medical
  - Collaborate with other disciplines
    - Mental Health, Juvenile Justice, School Psychology, Sociology
  - Use Single-case Designs to Document Evidence-based Practices

Use single-case research to document evidence-based practices.

- Define protocol for measuring "effect size"
- Swaminathan, et al., (2008) *Application of generalized least squares regression to measure effect size in single-case research: a technical report.* ***Institute of Education Science.***

- Define professional standards for identifying a practice as "evidence-based" using single case research.
  - At least five peer reviewed single case studies documenting experimental control
  - Studies represent research across at least three research groups
  - A minimum of 20 subjects total.
  - Demonstrated effect size of at least .50

School-wide PBS

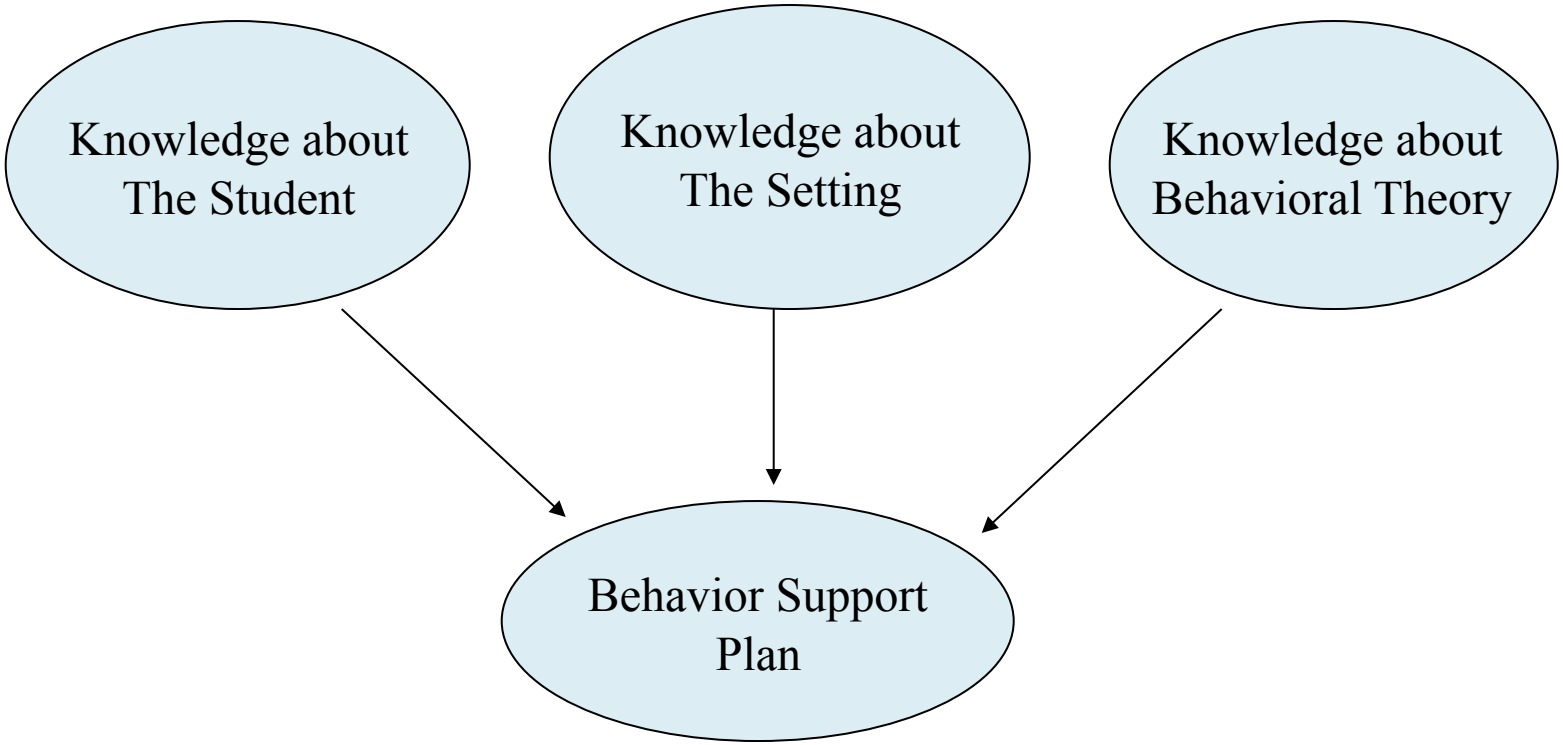
- 5. Build a functional technology of **Implementation**
  - Define conditions for implementation
  - Define conditions for high fidelity
    - Coaching, Policies, Administrative Contingencies
  - Establish implementation with low cost
  - Establish procedures for sustainability and continuous regeneration right from the beginning.

The Role of Behavior Specialists in the Development of Function-based Behavior Support Plans

Leah Benazzi

University of Oregon

Three knowledge areas needed for a behavior support plan



Design

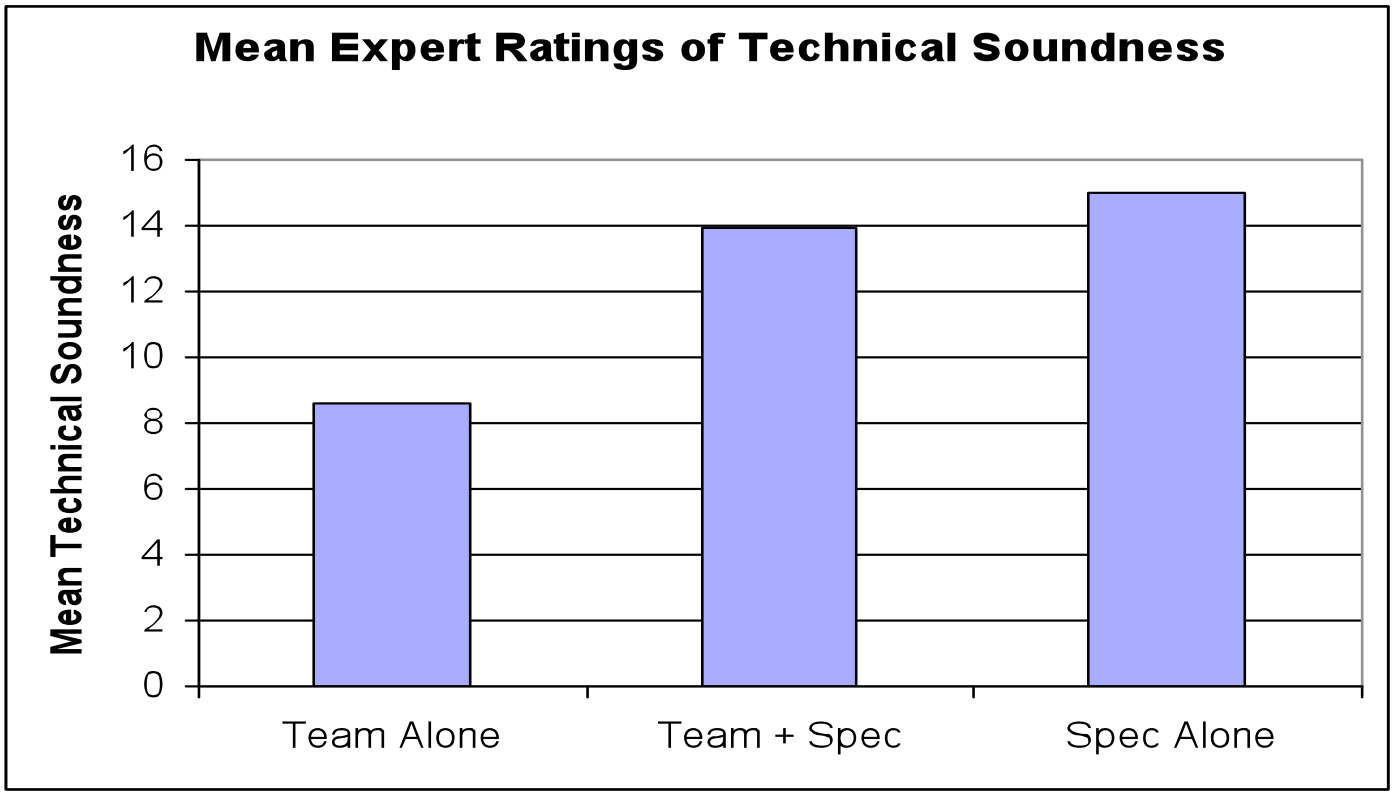
- Three conditions in which behavior support plan recommendations were built from simulated cases (descriptive information, functional assessment information)
  - 5 counterbalanced simulations

  - Team alone 12 plans
  - Specialist alone 12 plans
  - Team with Specialist 12 plans

Measures

- **Technical Adequacy**: Are elements of behavior support plan consistent with functional assessment hypothesis? (1-6) (range 3-18)
  - ABA Experts (published studies employing functional analysis)
- **Contextual Fit**: Are elements of plan consistent with values, skills, resources, administrative support?
  - 16 questions (8 factors):
  - Scored on 1-6 scale: Total (16-96)
- Team member **Ranking of Plans** based on preference for implementation (1,2,3)

Results: Technical Adequacy
Mean Expert Rating (6-18)



* Team alone plans were statistically different from plans that included behavior specialist.

*Team + Specialist and Specialist Alone were not statistically significantly different.

Table 3

Repeated Measures Analysis of Variance Summary Table for the Effects of Plan Developer on Technical Adequacy Scores

Source	*df*	*SS*	*MS*	*F*
Plan Developer	2	285.88	142.94	32.89*
Beh Spec Invol	1	279.27	279.27	64.26*
Unpredicted	1	6.62	6.62	1.52
Team	11	45.51	4.14	
Error	22	95.61	4.35	
Total	35	427.00		

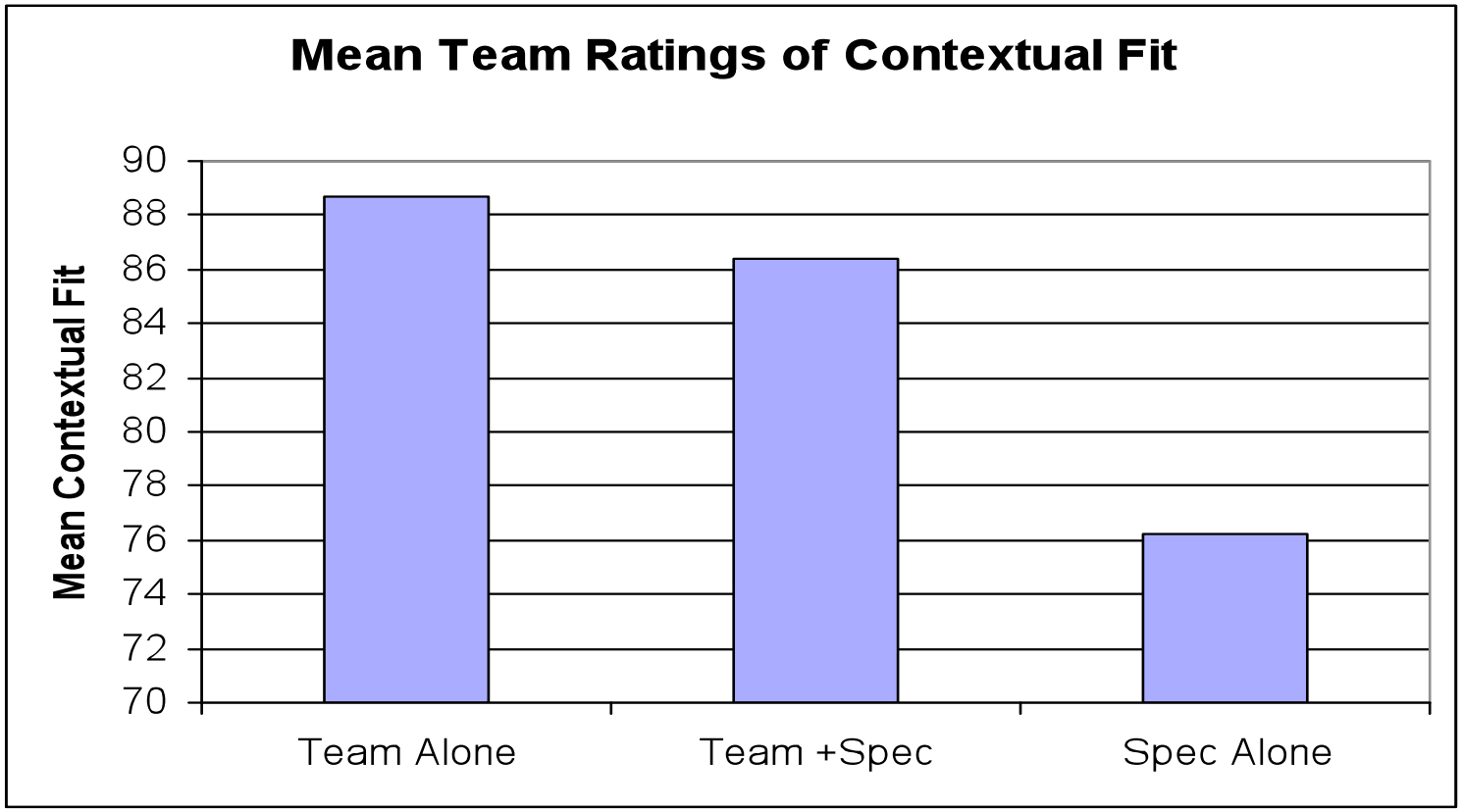
*$p < .01$.

Post-hoc analysis of Technical Adequacy

	F	Behavior Specialist	Team Alone	Team + Specialist
Problem Behavior	3.38	0.95	0.68	0.78
Antecedents identified	4.40	1	.83	1
Identified Function	14.14**	1	0.7	1
Prevention Strategies	16.2**	0.98	0.58	0.98
Teaching Strategies	5.51	0.92	0.68	0.92
Extinction Strategies	55.3**	0.93	0.28	0.84
Positive Reinforcement	5.57	0.94	0.78	0.98
Person Responsible	134.16**	0.93	0.11	0.83
Assess Fidelity	1.5	0.03	0	0.05
Assess Impact	163.83**	0.93	0.13	0.84

** $p <$ Bonferroni family-wise alpha .05

Results: Contextual Fit
Mean Team Rating (0-100)



* Specialist Alone plans were statistically different from plans that included team members.
* Team Alone and Team + Specialist plans were not statistically significantly different

Post-hoc Analysis of Contextual Fit

Contextual Fit Domain	F	Behavior Specialist	Team Alone	Team + Specialist
Knowledge of BSP Elements	15.99**	5.08	5.76	5.67
Skills to perform BSP	9.72	5.35	5.62	5.56
Values consistent with BSP	52.62**	4.69	5.85	5.76
Resources to implement	2.59	4.62	4.89	4.9
Administrative Support	10.68	4.93	5.23	5.32
BSP expected to be effective	29.78**	4.29	5.25	5.4
BSP in best interest of student	30.21**	4.78	5.74	5.77
BSP Efficient to Implement	13.10**	4.32	5.04	4.97

** $p <$ Bonferroni family-wise alpha .05

Benazzi Summary

- Functional behavioral assessment information will influence behavior support plans only if the team includes a member knowledgeable about behavior analysis.

- Behavior support plans are likely to be implemented only if the plan is developed by people knowledgeable about the students and context.

Embedding Bully-Proofing in School-wide PBS

Scott Ross
Rob Horner

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Main Ideas

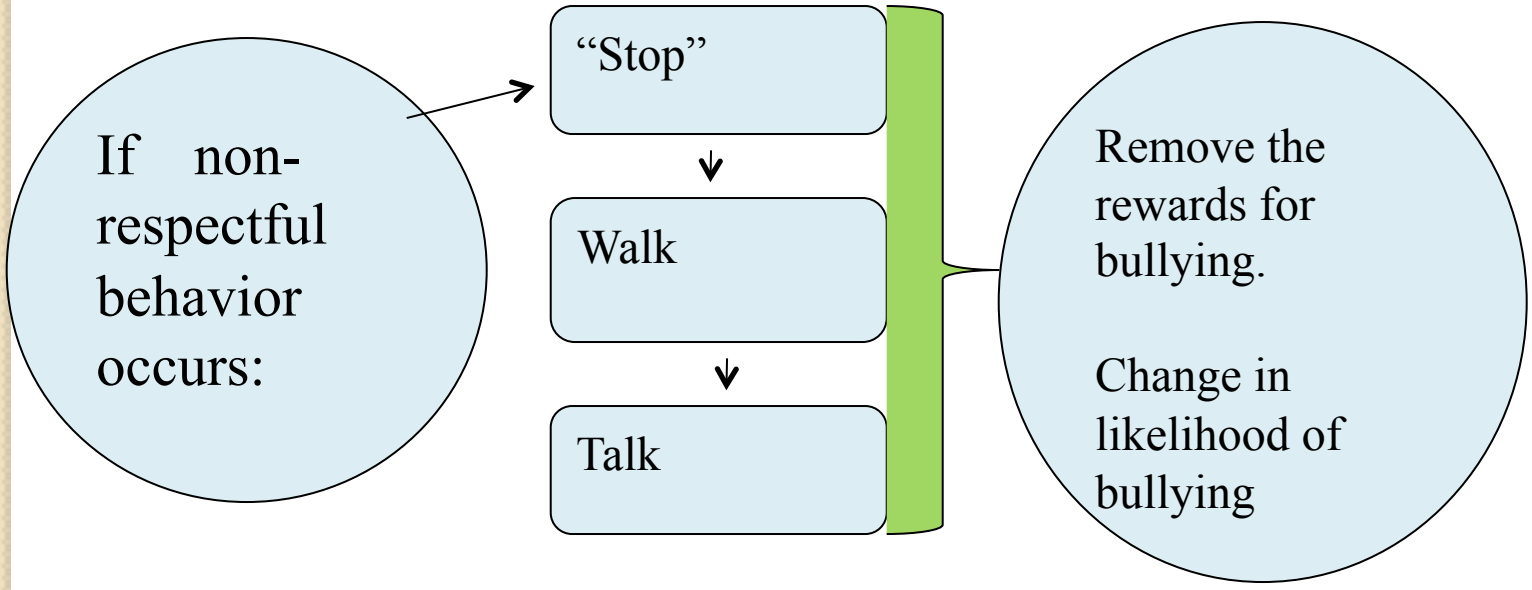
- Bullying behavior typically becomes more likely because the "victims" or "bystanders" provide rewards for bullying behaviors.
  - Social attention
  - Social recognition
  - Social status

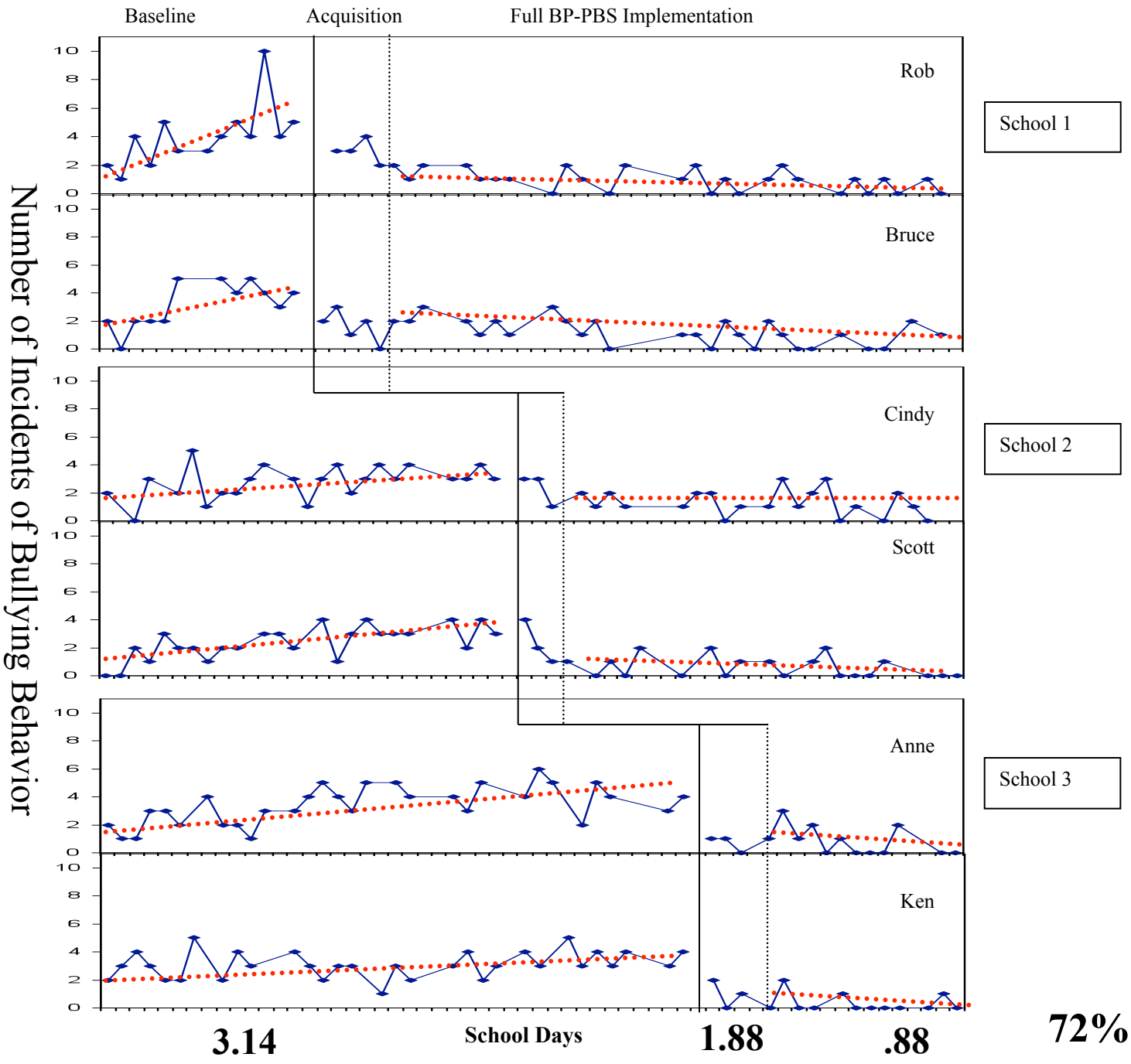
Teaching Social Responsibility

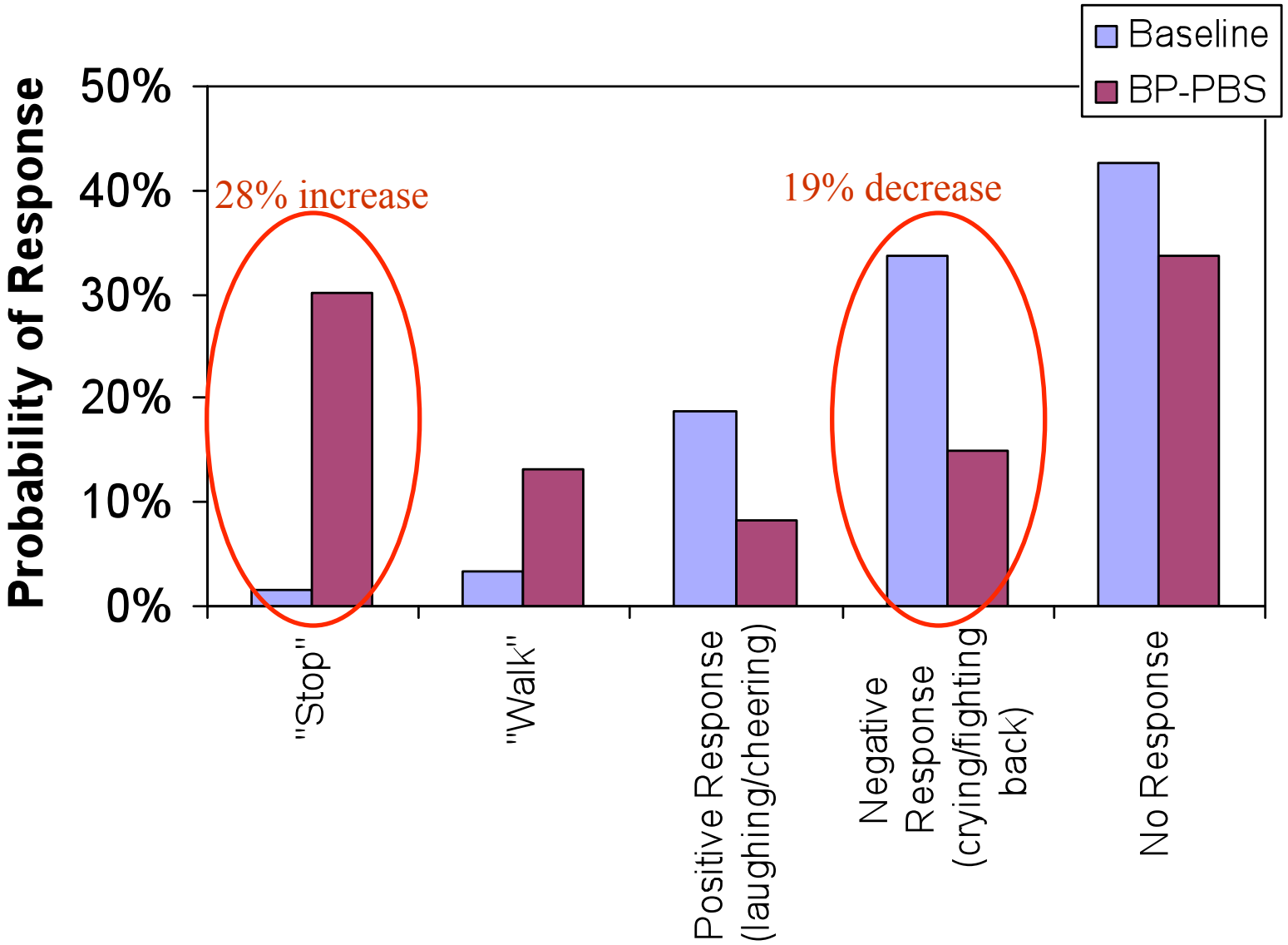
- Teach school-wide expectations first
  - Be respectful
  - Be responsible
  - Be safe
- Focus on "non-structured" settings
  - Cafeteria, Gym, Playground, Hallway, Bus Area
- Teach Bully Prevention "SKILLS"
  - If someone directs problem behavior toward you.
  - If you see others receive problem behavior
  - If someone tells you to "stop"

Predictable, consistent, positive and safe **social culture**
(expectations defined, taught, acknowledged)

Everyone can identify "respectful" and non-respectful behavior.




Baseline
Acquisition
Full BP-PBS Implementation
Rob
Bruce
Cindy
Scott
Anne
Ken
School 1
School 2
School 3
Number of Incidents of Bullying Behavior
0
2
4
6
8
10
3.14
School Days
1.88
.88
72%


Conditional Probabilities of Victim Responses to Problem Behavior
Probability of Response
50%
40%
30%
20%
10%
0%
Baseline
BP-PBS
28% increase
19% decrease
"Stop"
"Walk"
Positive Response (laughing/cheering)
Negative Response (crying/fighting back)
No Response

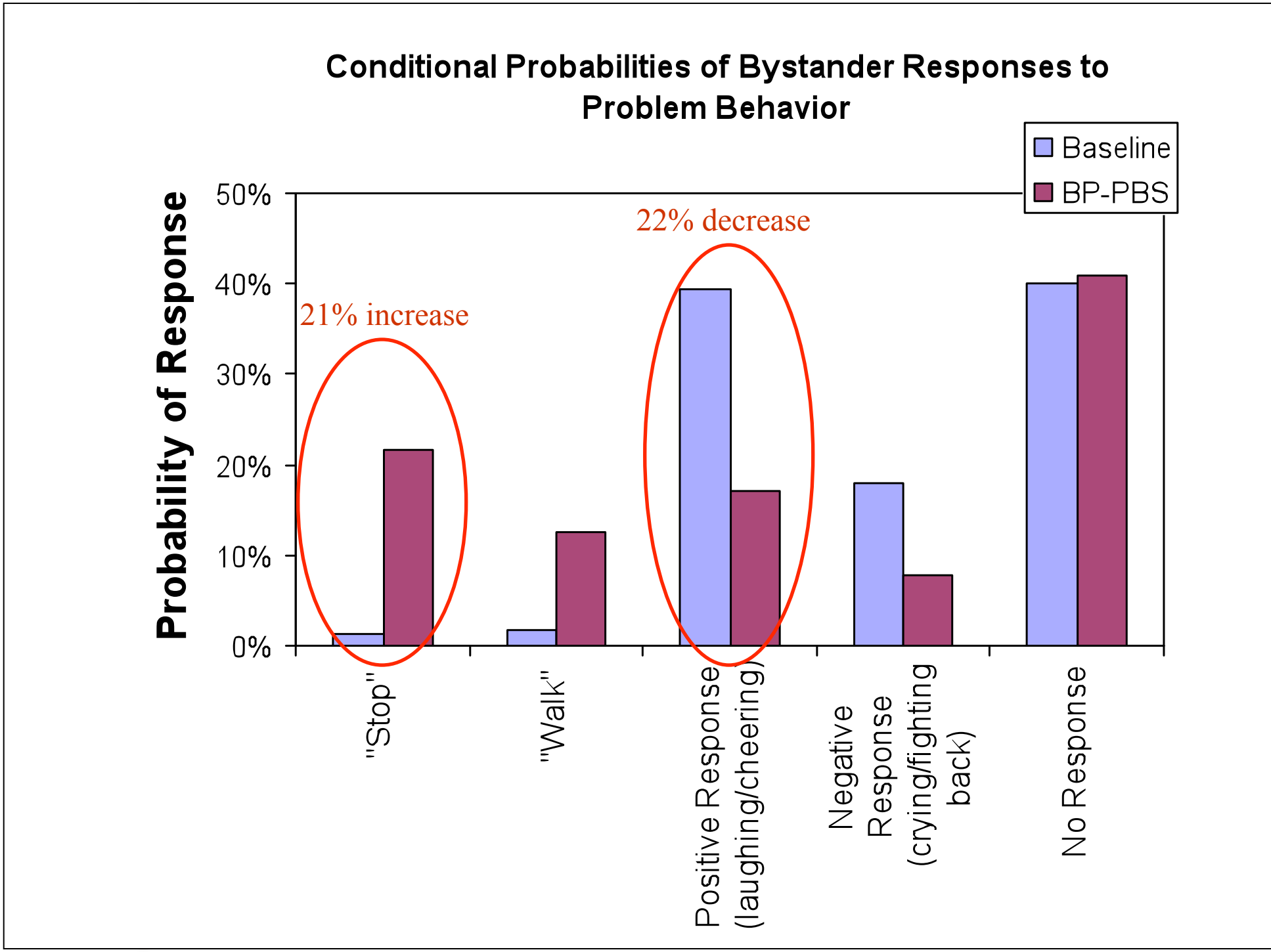

Conditional Probabilities of Bystander Responses to Problem Behavior
Baseline
BP-PBS
Probability of Response
50%
40%
30%
20%
10%
0%
21% increase
22% decrease
"Stop"
"Walk"
Positive Response (laughing/cheering)
Negative Response (crying/fighting back)
No Response

Table 6 : **Multivariate Analysis of Variance: Pre compared to Post SES+**

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	*p*	Partial Eta Squared
SES	2807.81	1	2807.81	36.07	.00	.04
Verbal						.03
Other verbal						07
Physical						01
Other physical						03
Gossip						00
Other gossip	10.13	1	10.13	8.82	.00	.01
Stop	162.90	1	162.90	113.63	.00	.11
Walk	75.52	1	75.52	63.62	.00	.06
Talk	31.72	1	31.72	20.14	.00	.02

Students rated the school as a safer environment after Bully-Prevention training.

Reduced verbal aggression, physical aggression, gossip from others.

Summary

- Bullying behavior reduced
- Social consequences changed
  - Social reward for bullying behavior reduced
  - "Stop" and "Walk" responses increased
- Student Perception (Pre-Post Survey)
  1. "I bully less"
  - 2. "I am bullied less"
  - 3. "School is a safer place"

Implementation Technology

- Role of Coaching
- Importance of Policy

Training Outcomes Related to Training Components			
	Training Outcomes		
Training Components	**Knowledge of Content**	**Skill Implementation**	**Classroom Application**
Presentation/ Lecture	10%	5%	0%
Plus Demonstration	30%	20%	0%
Plus Practice	60%	60%	5%
Plus Coaching/ Admin Support Data Feedback	95%	95%	95%

Joyce & Showers, 2002

Discipline Foundation Policy: LAUSD

- **School-Wide Positive Behavior Support**
- **NUMBER:** BUL-3638.0
- **ISSUER:** Donnalyn Jaque-Antón, Executive Officer, E
- **DATE: March 27, 2007**

Jeff Sprague
Nancy Franklin
Laura Zeff

- **POLICY:**
- Every student, pre-school through adult, [illegible] respectful and welcoming environment. Every educator has the right to teach in an atmosphere free from disruption and obstacles that impede learning. This will be achieved through the adoption and implementation of a consistent school-wide positive behavior support and discipline plan for every school in LAUSD.

- All school level discipline plans will be consistent with the *Culture of Discipline: Guiding Principles for the School Community (Attachment A) and Culture of Discipline: Student Expectations (Attachment B). This will include:* ***teaching school rules and social-emotional*** **skills; reinforcing appropriate student behavior; using effective classroom management and positive behavior support strategies** by providing early intervention for misconduct and appropriate use of consequences.

School-wide PBS

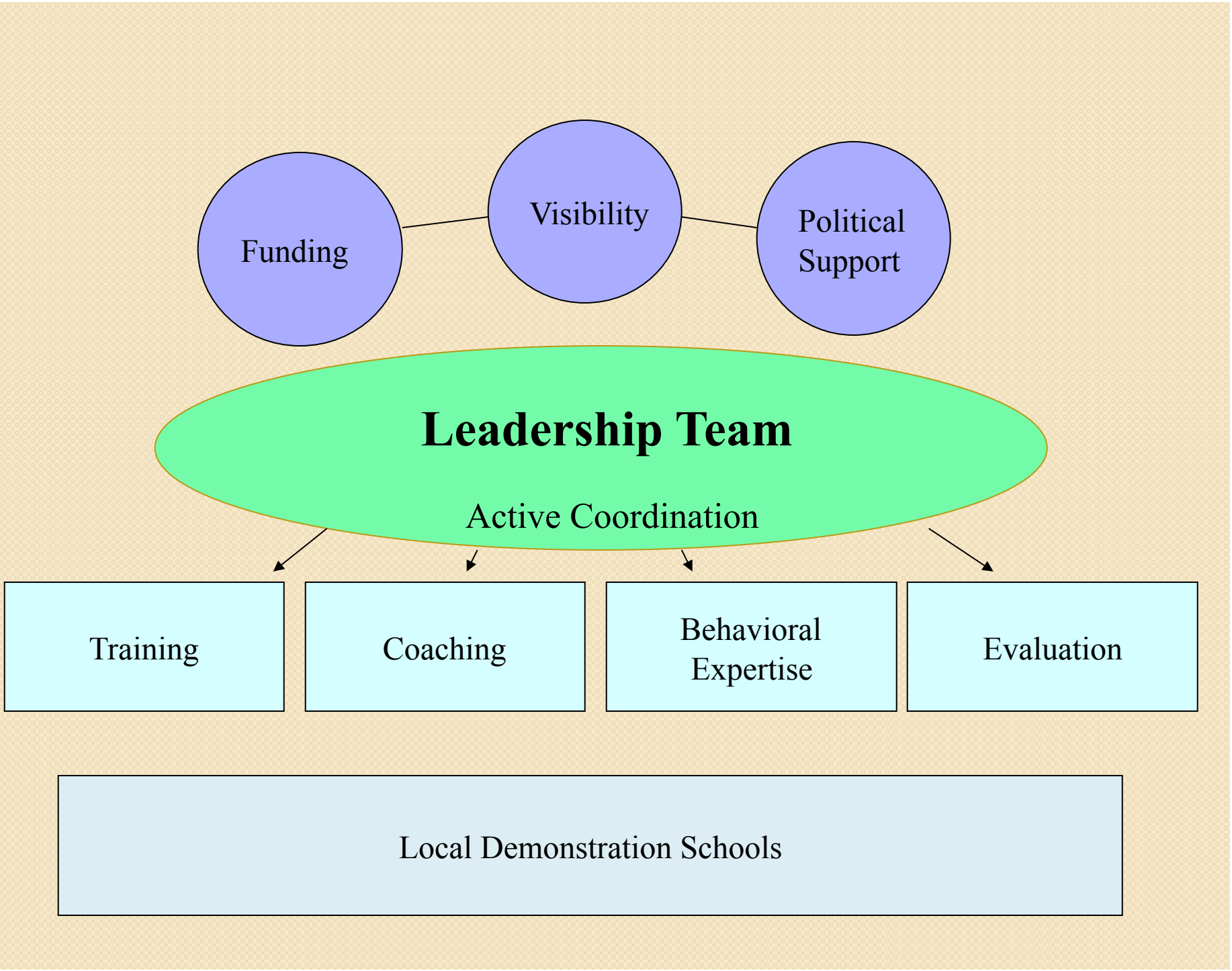
- 6. Define practices for scaling up
  - Efficacy
  - Effectiveness

  - Dean Fixsen and Karen Blase

A Vision for Systems Change:
The Promise of "Implementation Technology"

Dr. Dean Fixsen

Dr. Karen Blase


Funding
Visibility
Political Support
Leadership Team
Active Coordination
Training
Coaching
Behavioral Expertise
Evaluation
Local Demonstration Schools

School-wide PBS

- Document effects in multiple formats
  - Single case, Descriptive, RCT, etc.

- Documentation via randomized control-group Design
  - Provide research outcomes that address multiple audiences
    - Families
    - Administrators
    - Teachers
    - Scientist from all disciplines

The Effects of School-wide PBS within a Randomized Control Effectiveness Trial

Rob Horner, George Sugai, Keith Smolkowski, Lucille Eber, Jean Nakasato, Anne Todd, Jody Esperansa

OSEP TA Center on Positive Behavior Support

www.pbis.org

In press in the Journal of Positive Behavior Intervention

Research Questions

- Can SWPBS be implemented to criterion by typical state trainers?
- If SWPBS is implemented are schools perceived as safer settings?
- If SWPBS is implemented do students benefit academically?

Method

- Randomized Control Trial
  - 30 Elementary Schools in Illinois, and 30 Elementary Schools in Hawaii
  - Random assignment of schools to
    - **(Initial SWPBS training; and Delayed SWPBS training)**
  - Replacement (7 schools) randomly assigned

- Data collected across three years
  - Time 1: No SWPBS training for any schools
  - Time 2: **Initial Treatment** Schools get training
  - Time 3: **Delay** Schools get training (problems…)

Measures

- Office Discipline Referrals (ODR)

- Implementation of SWPBS
  - School-wide Evaluation Tool (SET)
    - Sugai et al.
- Perceived School Safety
  - School Safety Survey (SSS)
    - Sprague, Colvin & Irvin

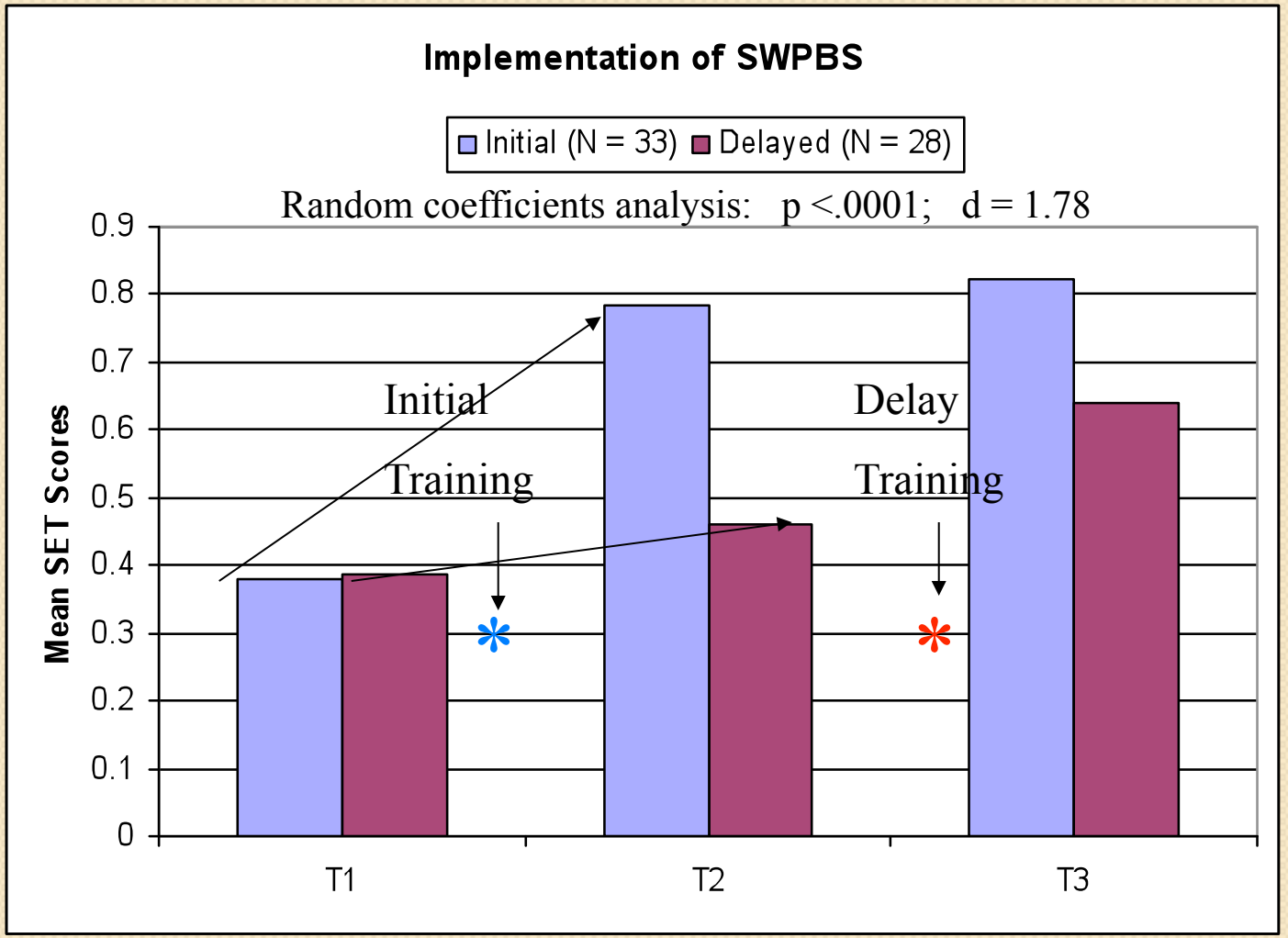
- Academic Success
  - Proportion of Students Meeting State Reading Standards (SAT – 9 in Hawaii; ISAT in Illinois)

Randomized Waitlist Controlled Trial

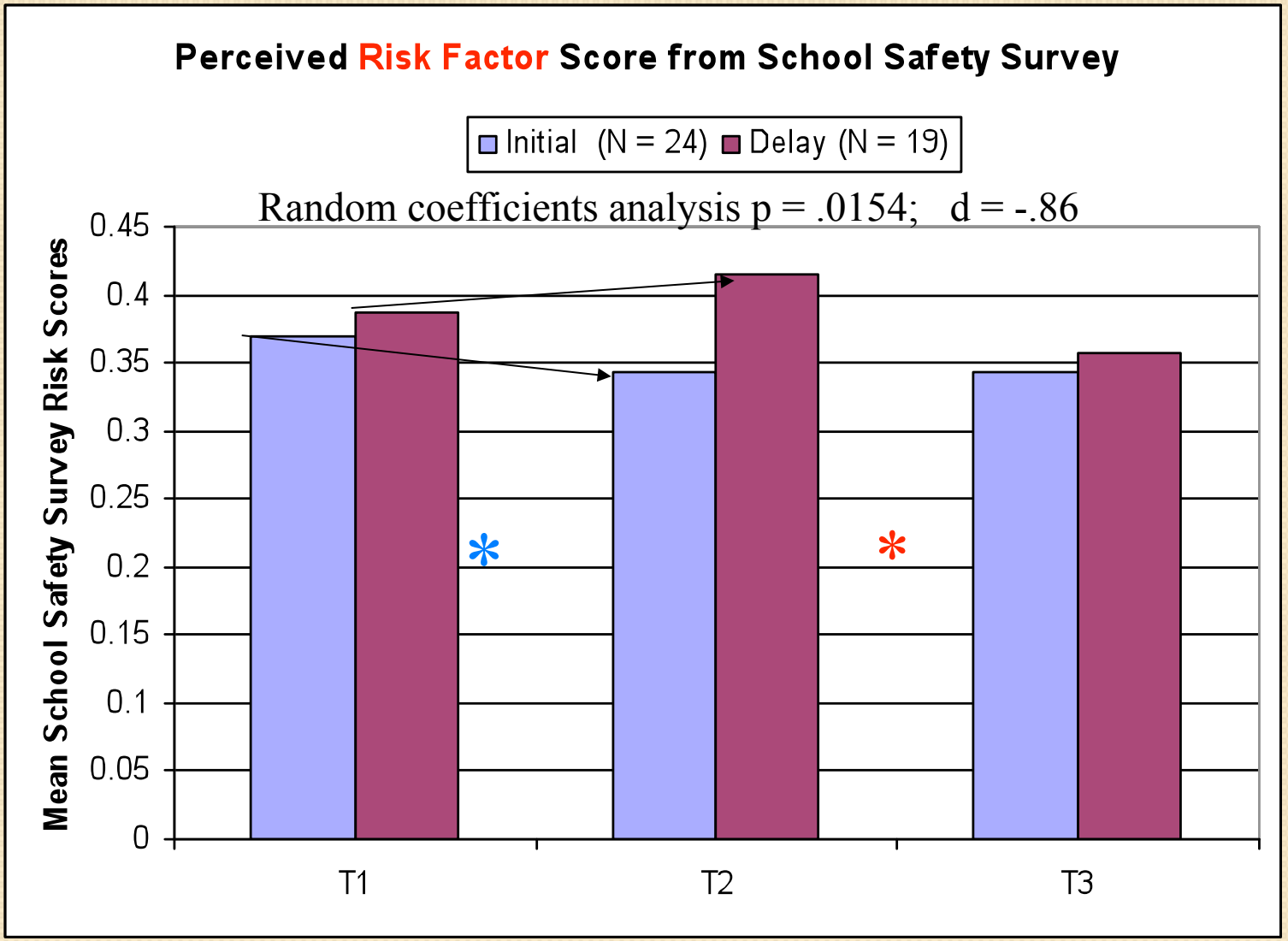
	Assessment Time Period				
Group	**T 1**		**T 2**		**T 3**
Treatment (N = 30)	O	X	O		O
Control/Delay (N = 30)	O		O	X	O

(T = time (by year), O = observation, X = implementation of SWPBS training)

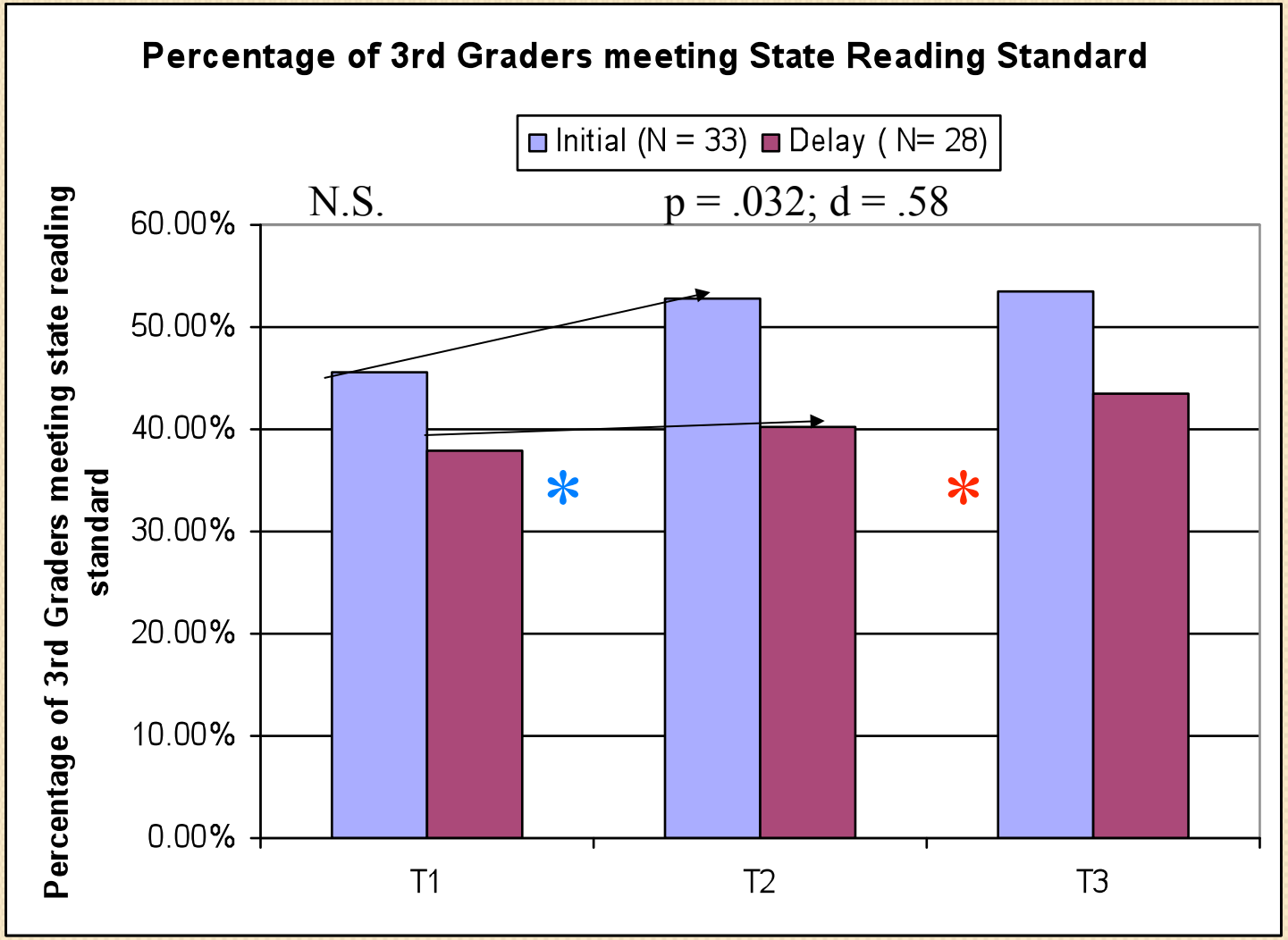
Results: With training by regular state trainers, schools are able to implement SWPBS to criterion.



Results: Perceived Social Risk Factors decreased when SWPBS was implemented with fidelity.



Results: The percentage of 3rd graders meeting the state reading standard increased with SWPBS implementation



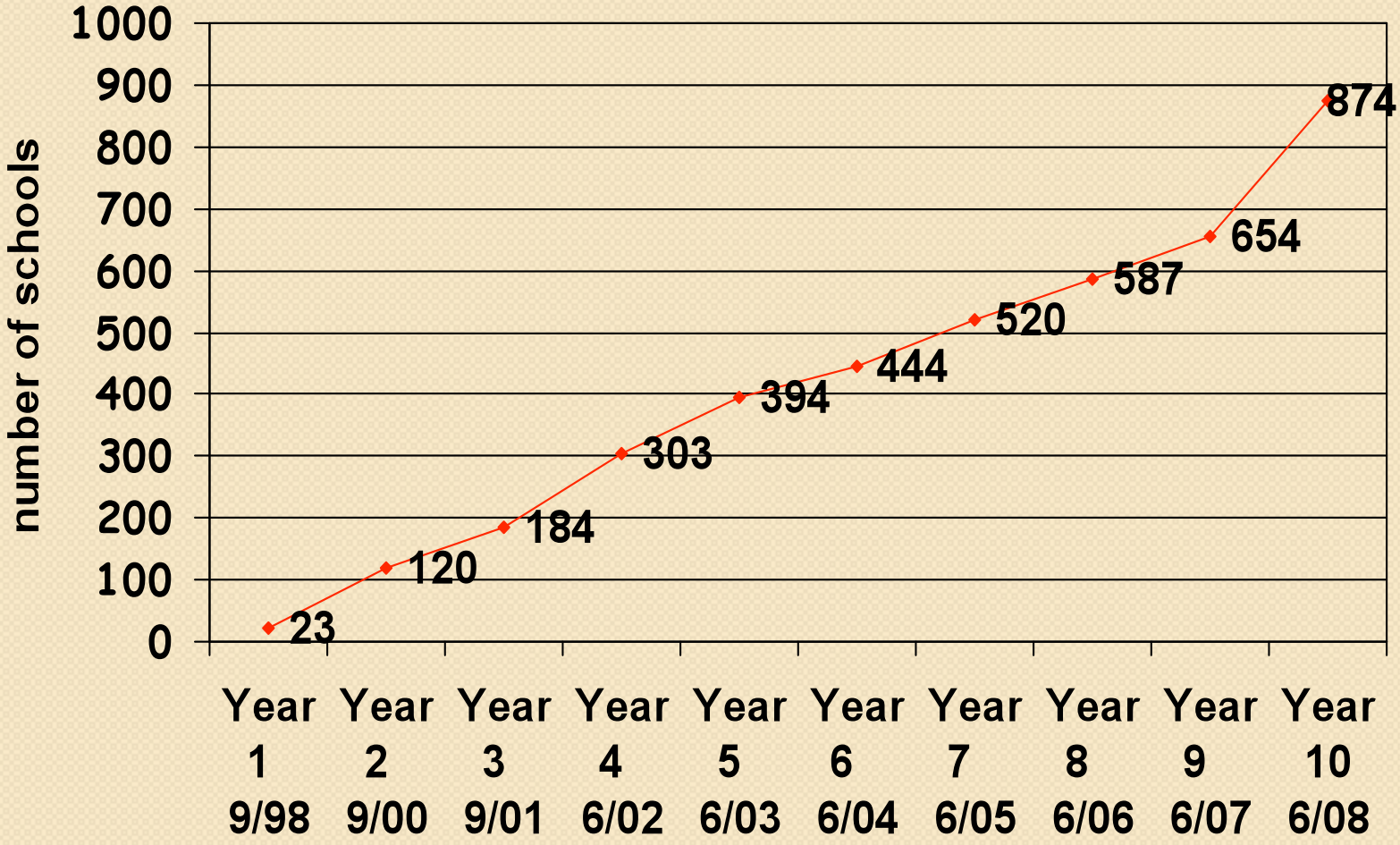
PBIS in Illinois

Lucille Eber Ed.D.
IL PBIS Network

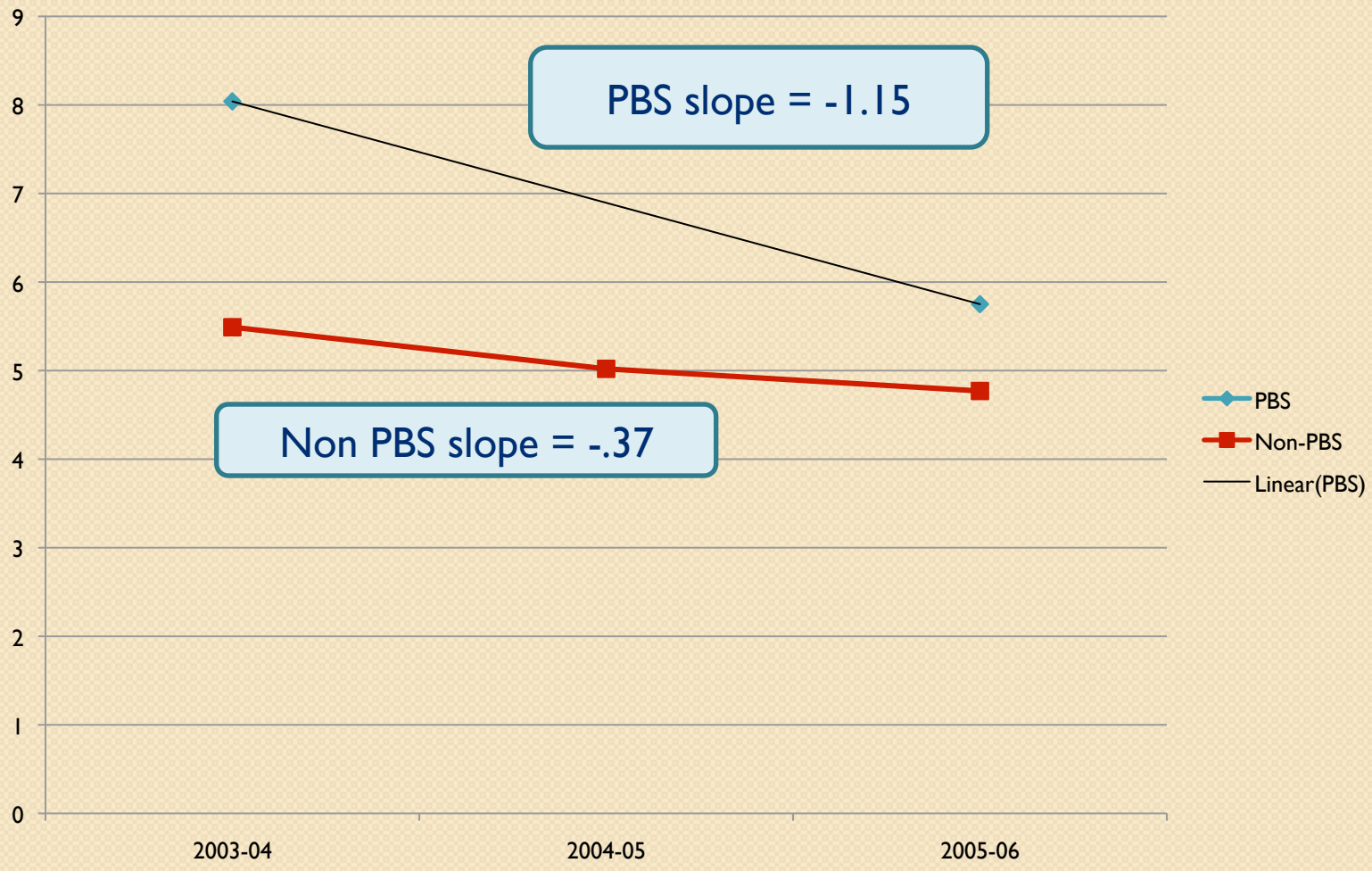
July 17, 2008
Developing Local Systems of Care
for Children and Adolescents with
Mental Health Needs and their Families
Training Institutes
Nashville, TN

PBIS Schools Over Ten Years:

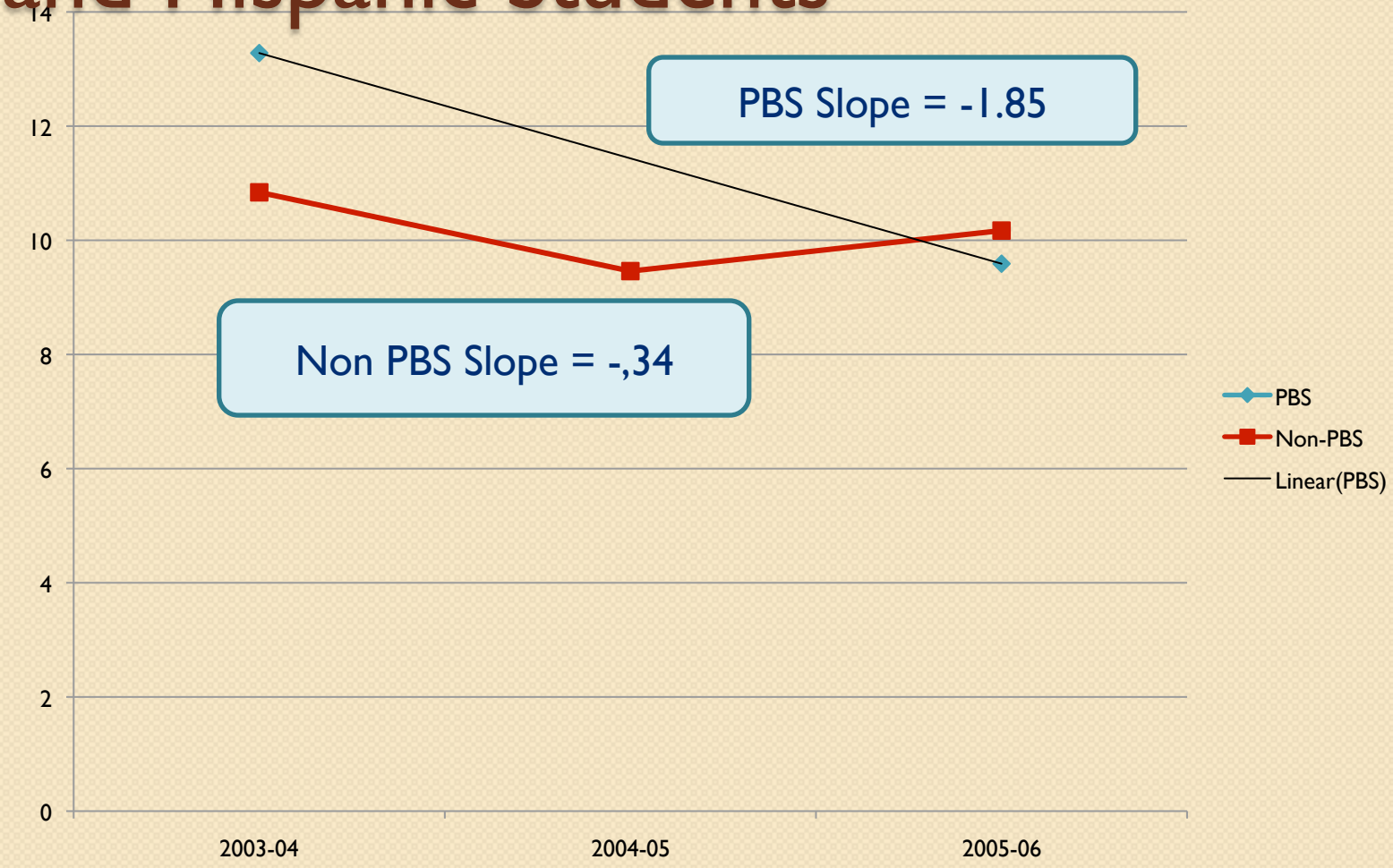
Trained & Partially or Fully Implementing



Illinois Suspension Rates per 100



Illinois Suspension Rates per 100 for Black and Hispanic Students



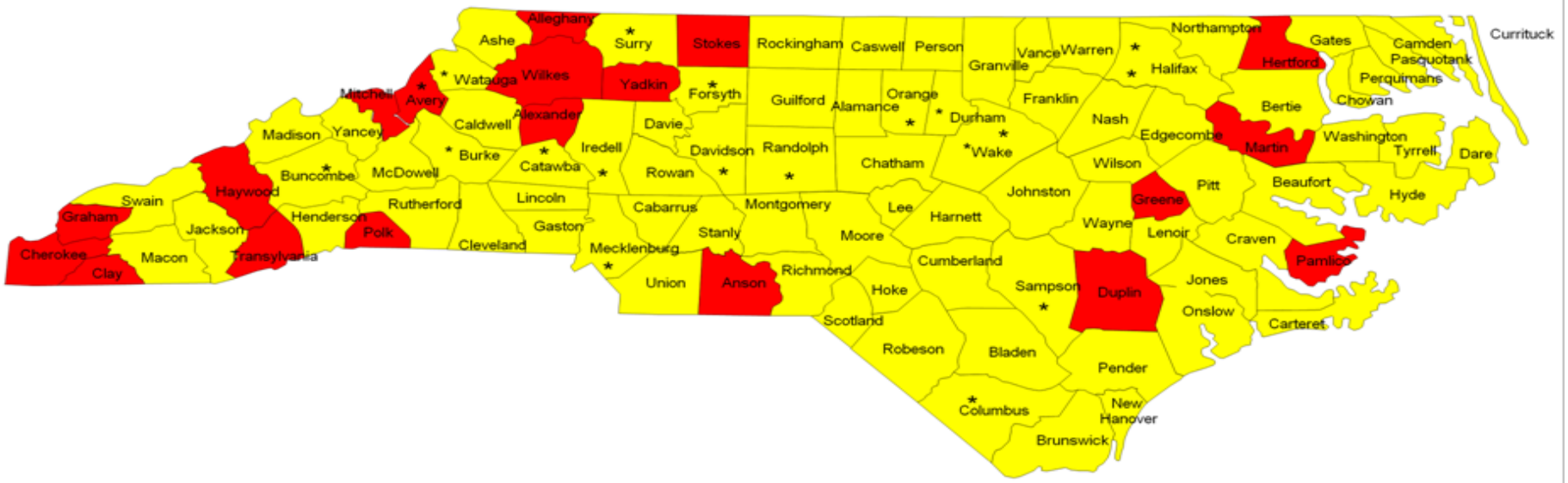
North Carolina
Positive Behavior Support Initiative

February 2009

Heather R. Reynolds
NC Department of Public Instruction
Bob Algozzine
Behavior and Reading Improvement Center

http://www.dpi.state.nc.us/positivebehavior/

North Carolina
Positive Behavior Support Initiative

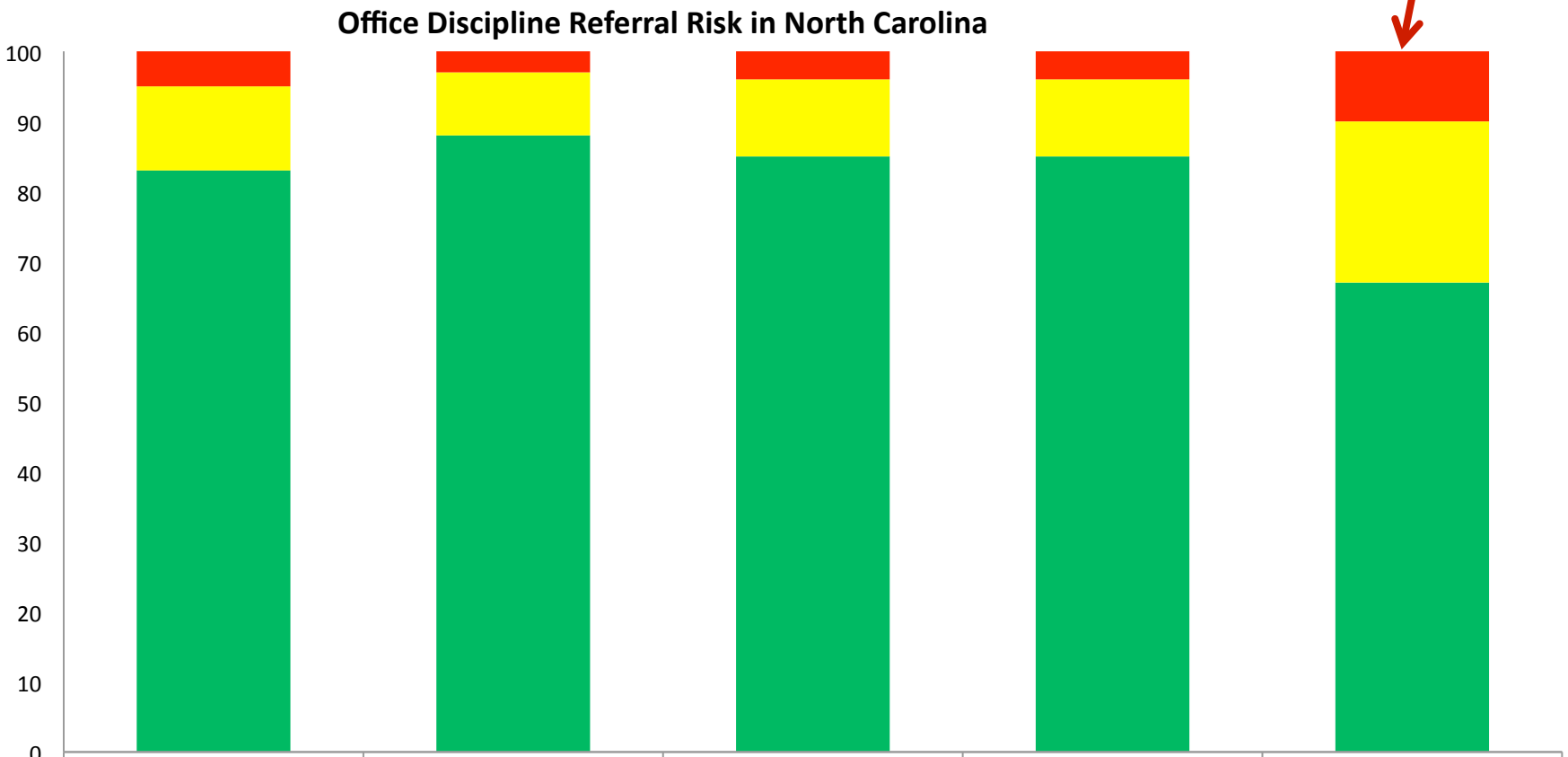


Dr. Bob Algozzine

North Carolina Positive Behavior Support Initiative

Dr. Bob Algozzine

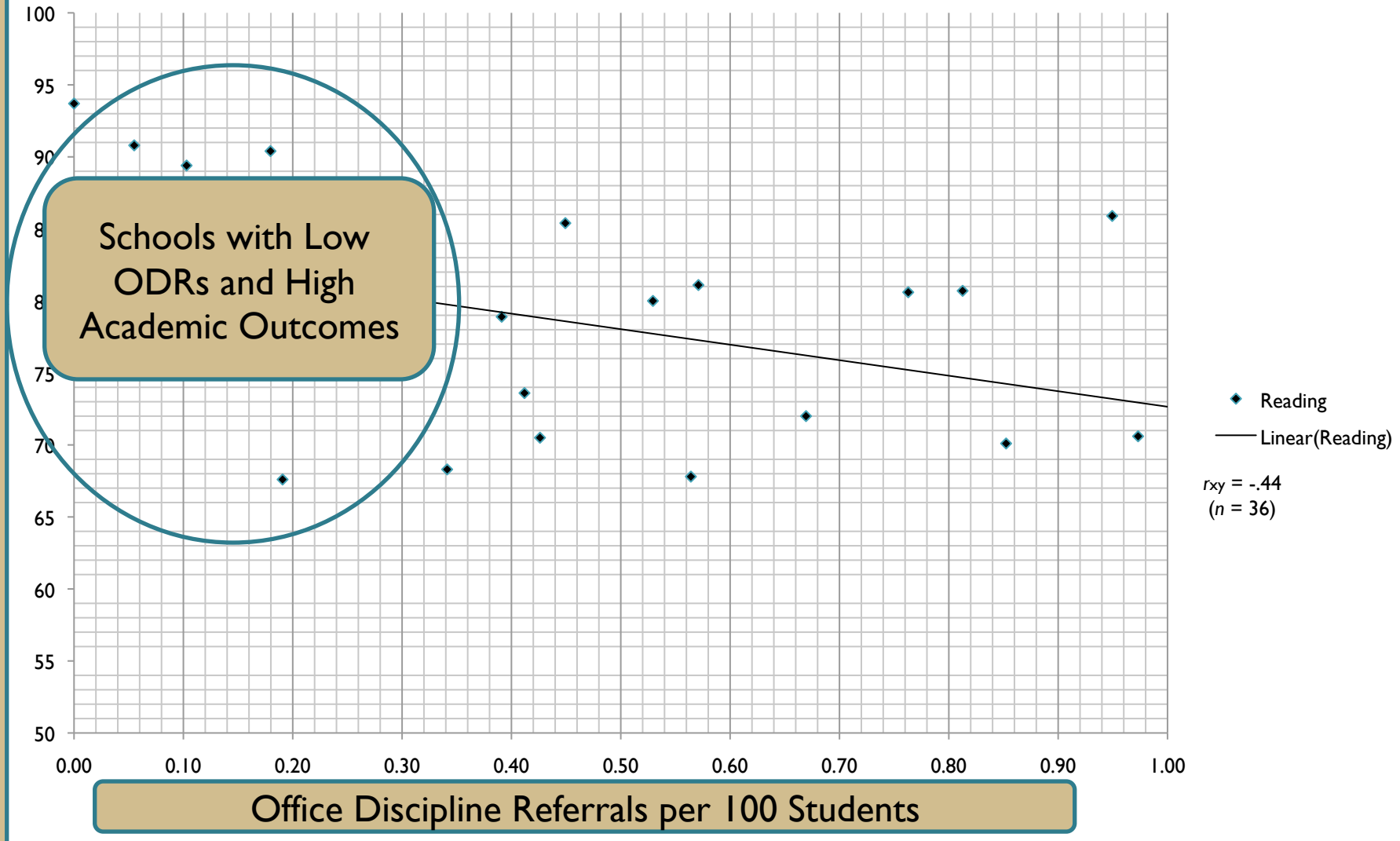
Non-PBS Comparison



	2004-05 (N=21)	2005-06 (N=35)	2006-07 (N=66)	2007-08 (N=110)	Comparison (N=5)
6+ ODR	5	3	4	4	10
2-5 ODR	12	9	11	11	23
0-1 ODR	83	88	85	85	67

Dr. Bob Algozzine

North Carolina Positive Behavior Support Initiative



MiBLSi
MICHIGAN's
INTEGRATED BEHAVIOR & LEARNING SUPPORT INITIATIVE

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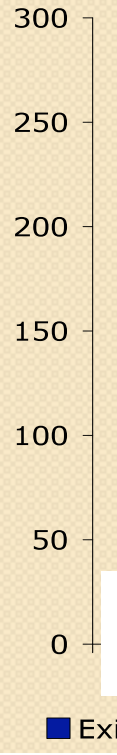
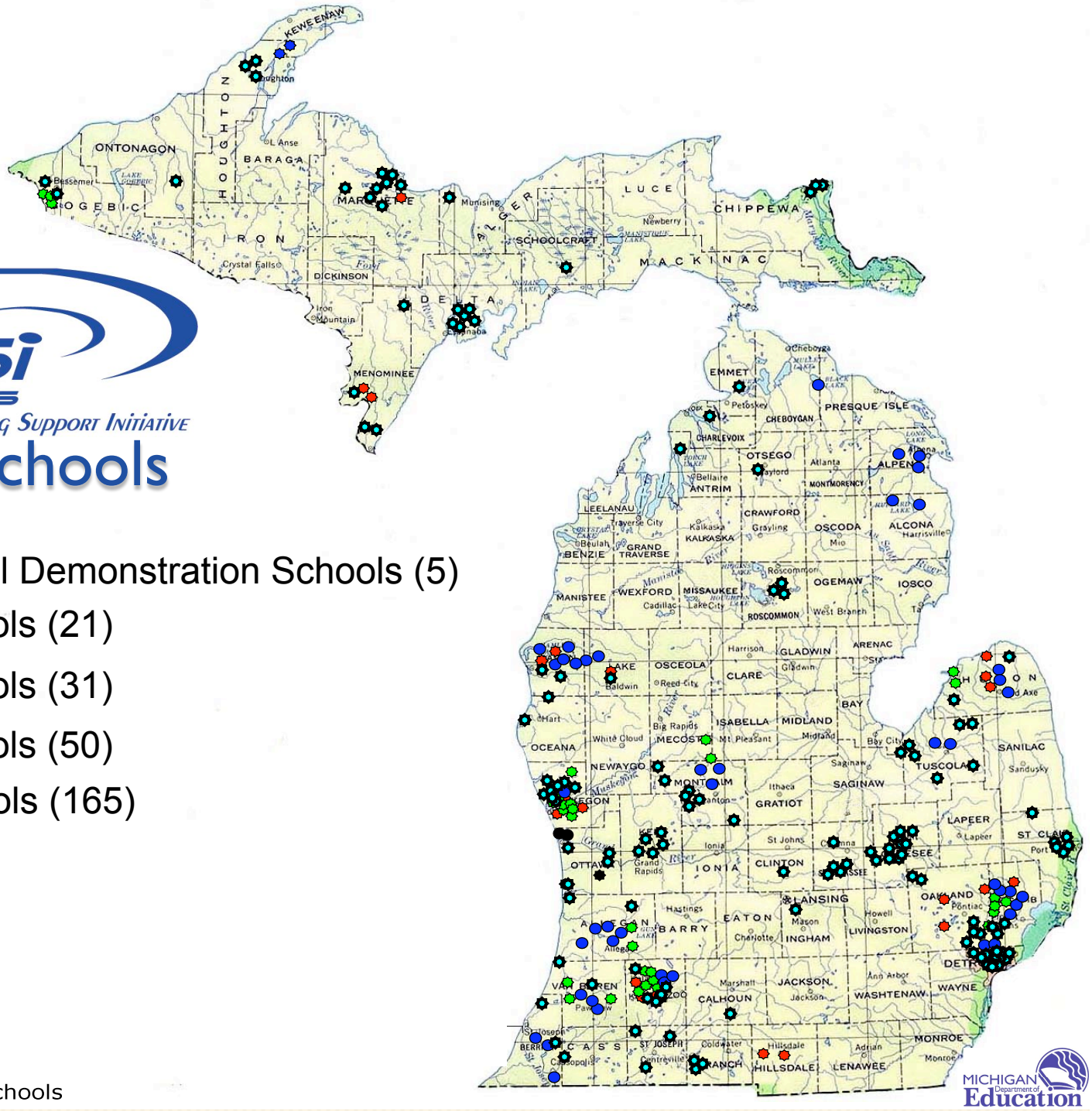
MICHIGAN Department of Education

MiBLSi
MICHIGAN'S
INTEGRATED BEHAVIOR & LEARNING SUPPORT INITIATIVE

Participating Schools

- 2000 Model Demonstration Schools (5)
- 2004 Schools (21)
- 2005 Schools (31)
- 2006 Schools (50)
- 2007 Schools (165)

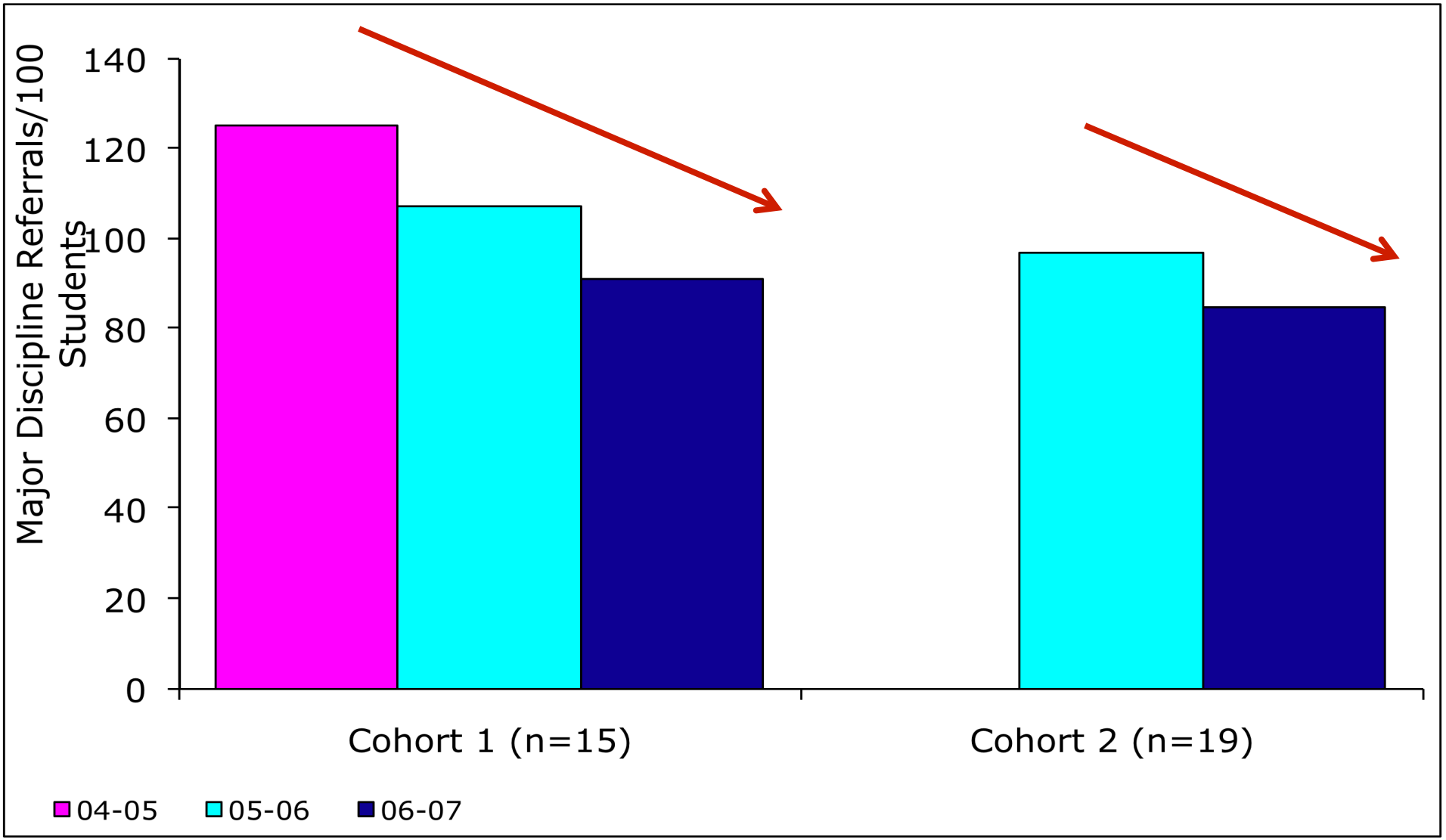




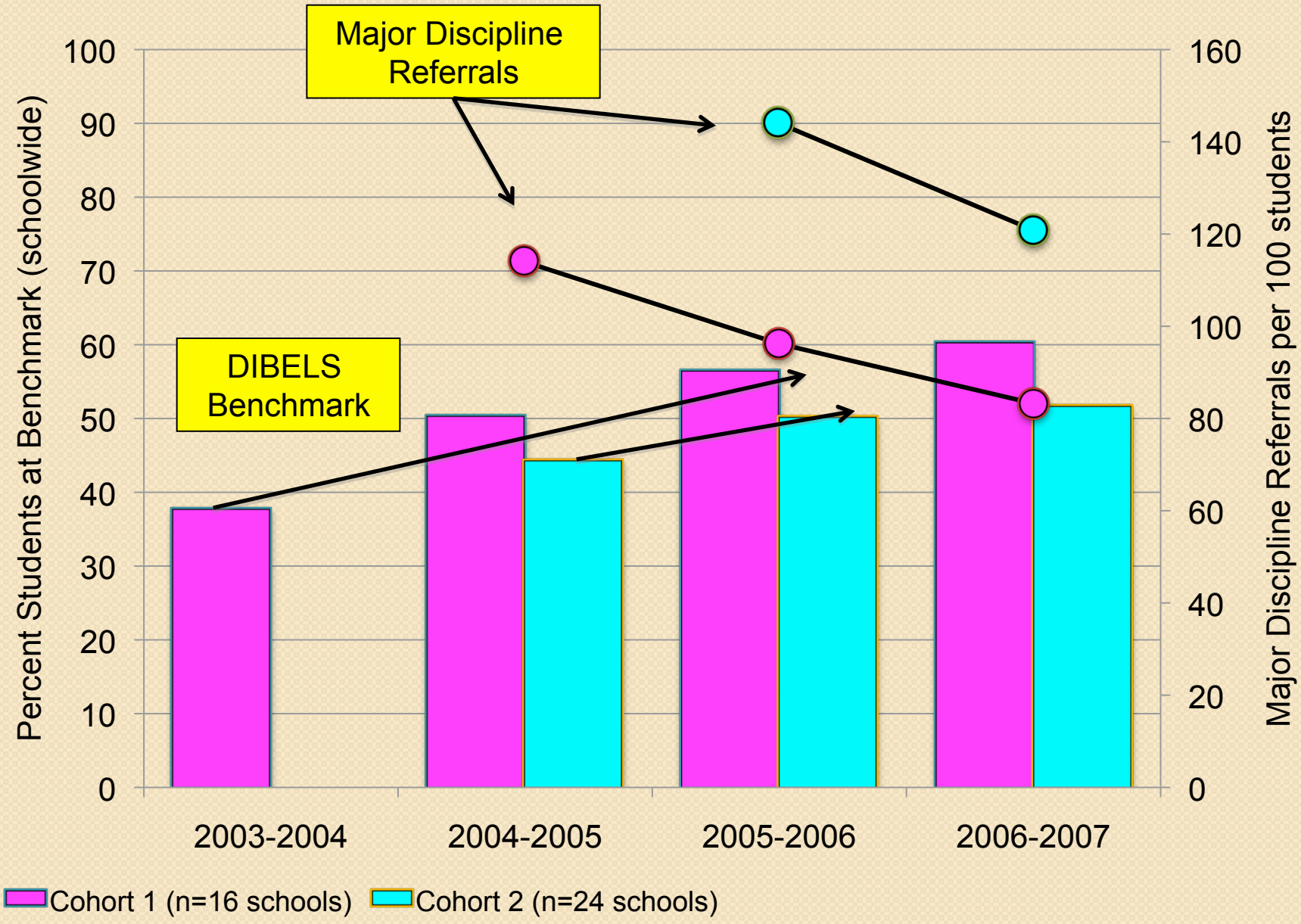
MICHIGAN Department of Education

Major Discipline Referrals per 100 Students per Year

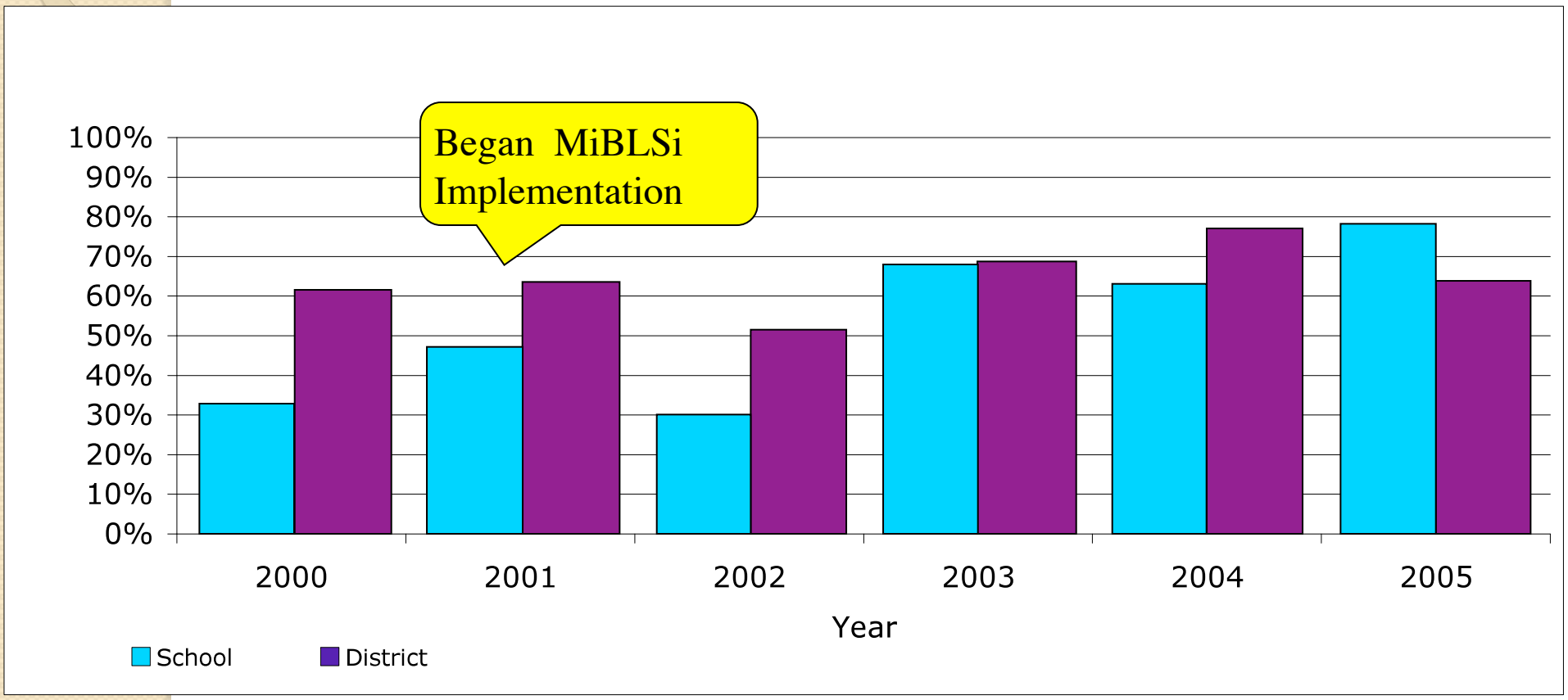
(Schools implementing ≥ 80% on Team Implementation Checklist)



DIBELS Instructional Recommendations and Major Discipline Referral per Cohort per Year



Participating School Example: Fourth Grade Reading MEAP Results



Summary

- **Never stop development of the rigorous, precise science of human behavior.**
- **Expand the unit of analysis to address socially relevant outcomes**
  - **Address the full set of outcomes defined as important for a context/ community**
- **Expand the research methods/questions to address socially important concerns.**
  - **Sustainability**
  - **Scalability**

Summary

- **Invest in a technology of "implementation" that will focus on taking evidence-based practices to scale.**