

# Research-Based Intervention, Translation to Practice, and Implementation for Learners with Autism Spectrum Disorders



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THE NATIONAL PROFESSIONAL DEVELOPMENT CENTER ON  
AUTISM SPECTRUM DISORDERS



# Overview of Topics

- Introduction to National Professional Development Center on Autism Spectrum disorders (ASD)
- Research-Based Interventions: Identifying Evidence-Based Practices (EBP)
- Translation of EBP to Practice
- Implementation for Learners with ASD
- Impact of our Work



# National Professional Development Center on Autism Spectrum Disorders

**A multi-university center to promote use  
of evidence-based practice for children  
and adolescents with autism spectrum  
disorders**

- FPG Child Development Institute, University of North Carolina at Chapel Hill
- M.I.N.D. Institute, University of California at Davis Medical Center
- Waisman Center, University of Wisconsin at Madison



# Center Staff

FPG Child Development Institute Univ. of NC-Chapel Hill	M.I.N.D. Institute Univ. of CA-Davis Medical Center	Waisman Center Univ. of WI-Madison
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# Goals of the National Center?

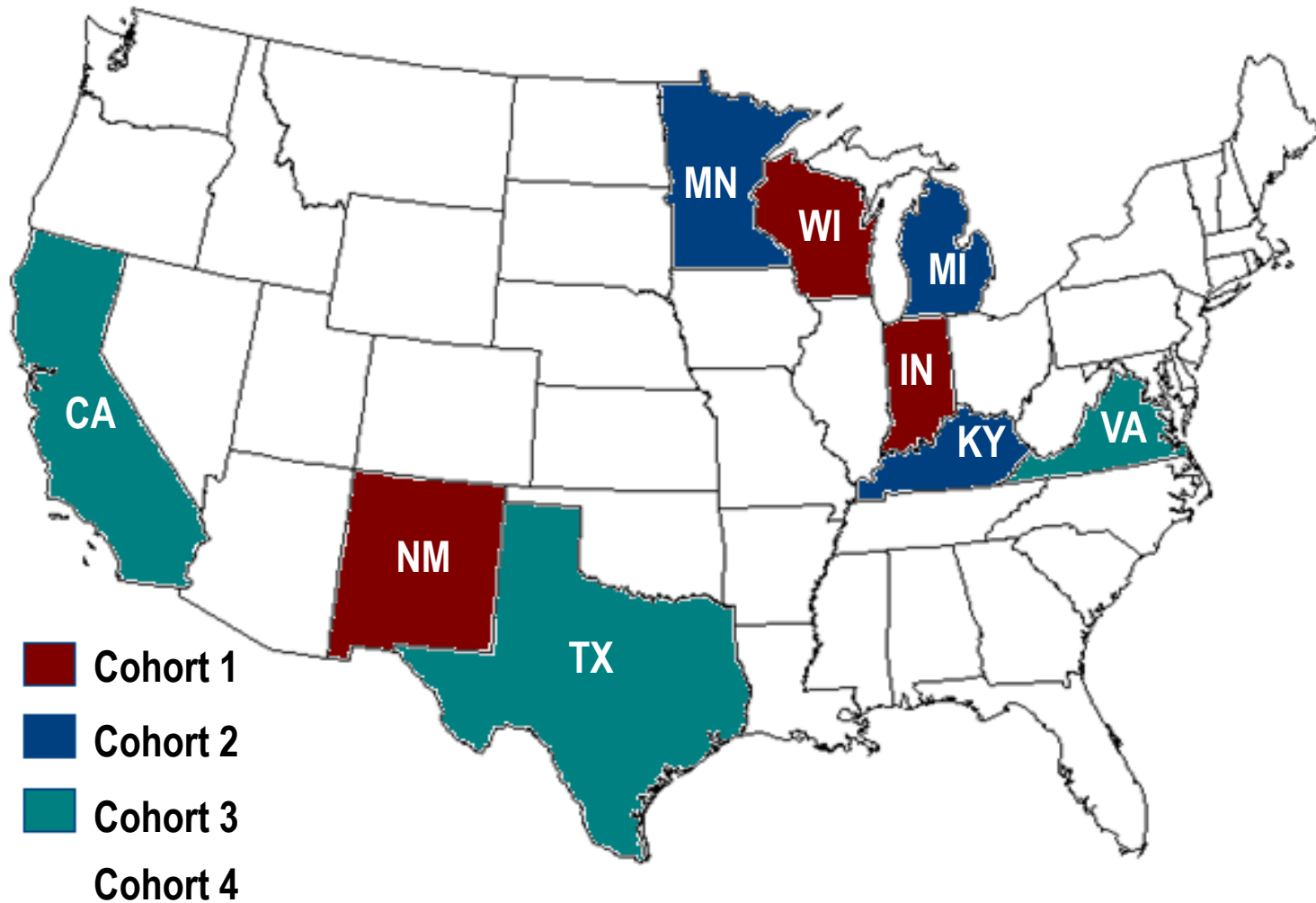
- Promote development, learning, and achievement of children with ASD and support families through use of evidence-based practices
- Increase state capacity to implement evidence-based practices
- Increase the number of highly qualified personnel serving children with ASD



# Working in Partnership With States



# State Involvement to Date



# Site Descriptions (since 2007)

- 9 states
- 48 model/expansion sites
  - 10 preschools
  - 17 elementary schools
  - 11 middle schools
  - 10 high schools
- Breakdown by type of program
  - 51% are self-contained programs
  - 49% are inclusive programs



# Research-Based Intervention: Identifying Evidence-Based Practices (EBP)



# What are EBP?

Focused interventions that:

- Produce specific behavioral and developmental outcomes for a child
- Have been demonstrated as effective in applied research literature
- Can be successfully implemented in educational settings

(Odom, Boyd, Hall, & Hume, 2009)



# Process Used to Identify EBP

- Identified outcomes related to the core features of autism
- Reviewed literature related to outcomes and the key words autism, ASD, and autism spectrum, limited by age (birth – 21)
- Identified and grouped teaching interventions that addressed these outcomes/domains
- Determined criteria and whether an evidence base supported the practices



# NPDC Criteria

*To be considered an evidence-based practice:*

- Two randomized or quasi-experimental design studies,
- Five single subject design studies by three different authors, OR
- A combination of evidence such a one group and three single-subject studies



# Evidence-Based Practices

- Antecedent-based interventions
- Computer-aided instruction
- Differential reinforcement
- Discrete trial training
- Extinction
- Functional behavior assessment
- Functional communication training
- Naturalistic interventions
- Parent-implemented intervention
- Peer-mediated instruction/intervention
- Picture Exchange Communication System™
- Pivotal response training
- Prompting
- Reinforcement
- Response interruption/redirection
- Self-management
- Social narratives
- Social skills training groups
- Speech generating devices
- Structured work systems
- Task analysis
- Time delay
- Video modeling
- Visual supports



# Evidence-Based Practices are DELICIOUS!



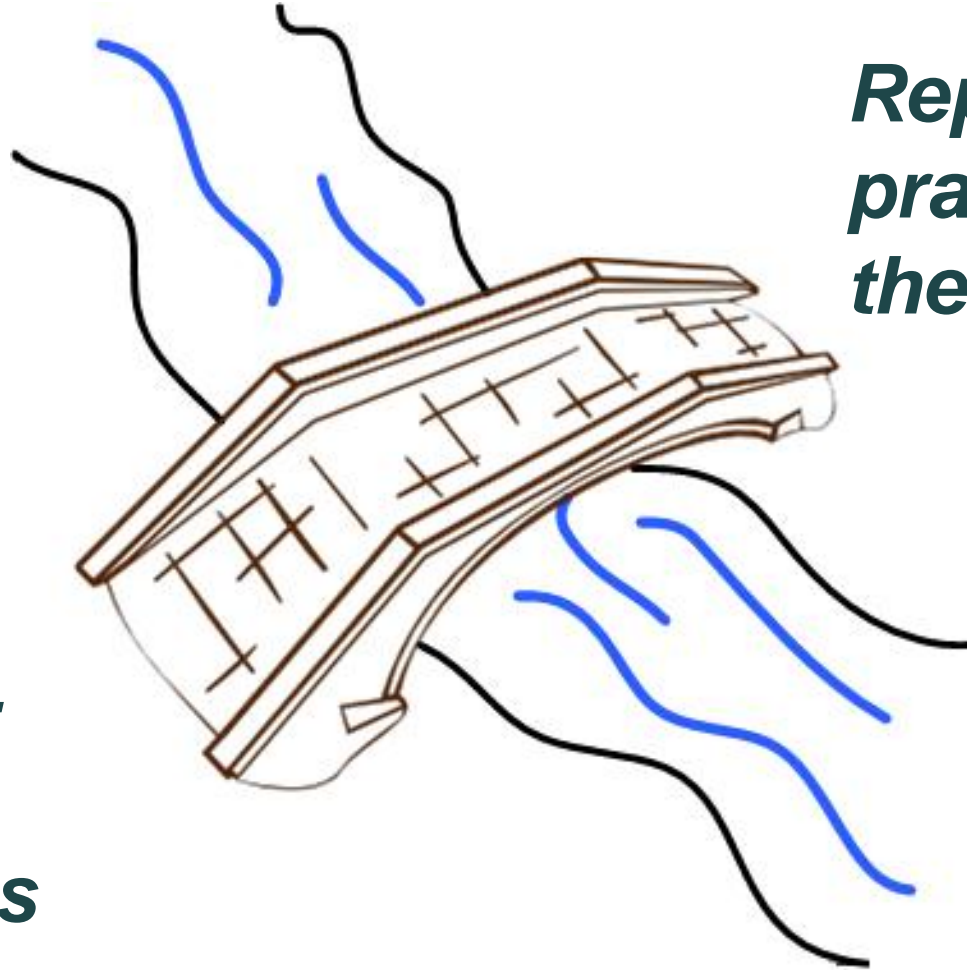
# Translation of Research to Practice

- Developing learning materials on EBP
  - Briefs
  - On-line modules
- Validating module/brief content
- Establishing fidelity of implementation



# Bridge the Gap

*Replicable  
practices in  
the classroom*



*Research-  
based  
practices*



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# Resources Developed on EBP

- EBP Briefs (<http://autismpdc.fpg.unc.edu>)
  - Overview
  - Evidence Base
  - Steps for Implementing
  - Implementation Checklist
  - Sample Data Collection Forms (optional)



# Resources Developed on EBP

- Online Modules (Collaboration with OCALI)
  - Posted on AIM Website ([www.autisminternetmodules.org](http://www.autisminternetmodules.org))
  - Narrative content with video examples of practices being implemented
  - Includes downloadable EBP brief components
  - Pre/ Post knowledge assessment
  - Case study examples
  - Learning activities, Discussion questions



# EBP Content Validation

- Identified national experts on practices  
Sean Smith, M. Ostrosky, R. Horner, M. Solomon, M. Conroy, M.L. Hemmeter, J. Howard, G. Dunlap, D. Sainato, M. A. Ronski, M. Olive, S. Harris, T. Smith, L. Koegel, A. Kaiser, A. Bondy, etc.
- Experts reviewed modules and brief and provided comment
- Modules/briefs revised and finalized



# Implementation Fidelity

- *Implementing an intervention in same manner in which it was done in the evidence-based research*
- How is this achieved?
  - Use self-learning modules on practices
  - Offer training on the practice, as needed
  - Use implementation checklists for the EBP to capture fidelity of implementation
  - Coach on the practice until fidelity is attained



# Sample Implementation Checklist

## Implementation Checklist for Naturalistic Intervention

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
<b>Step 1. Identifying a Target Act</b>	<b>Score**</b>								
1. Teachers/practitioners select a specific target act/skill to be the focus of intervention that:									
a. focuses on prelinguistic or linguistic communication and/or									
b. social skills.									
2. Teachers/practitioners confirm that the target act is in the learner's IEP or IFSP.									
<b>Step 2. Collecting Baseline Data</b>	<b>Score**</b>								
1. Prior to intervention, teachers/ practitioners determine the learner's current use of the target skill.									
2. Teachers/practitioners take data on the target skills a minimum of three times in more than one environment.									

**\*\*Scoring Key:** 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable

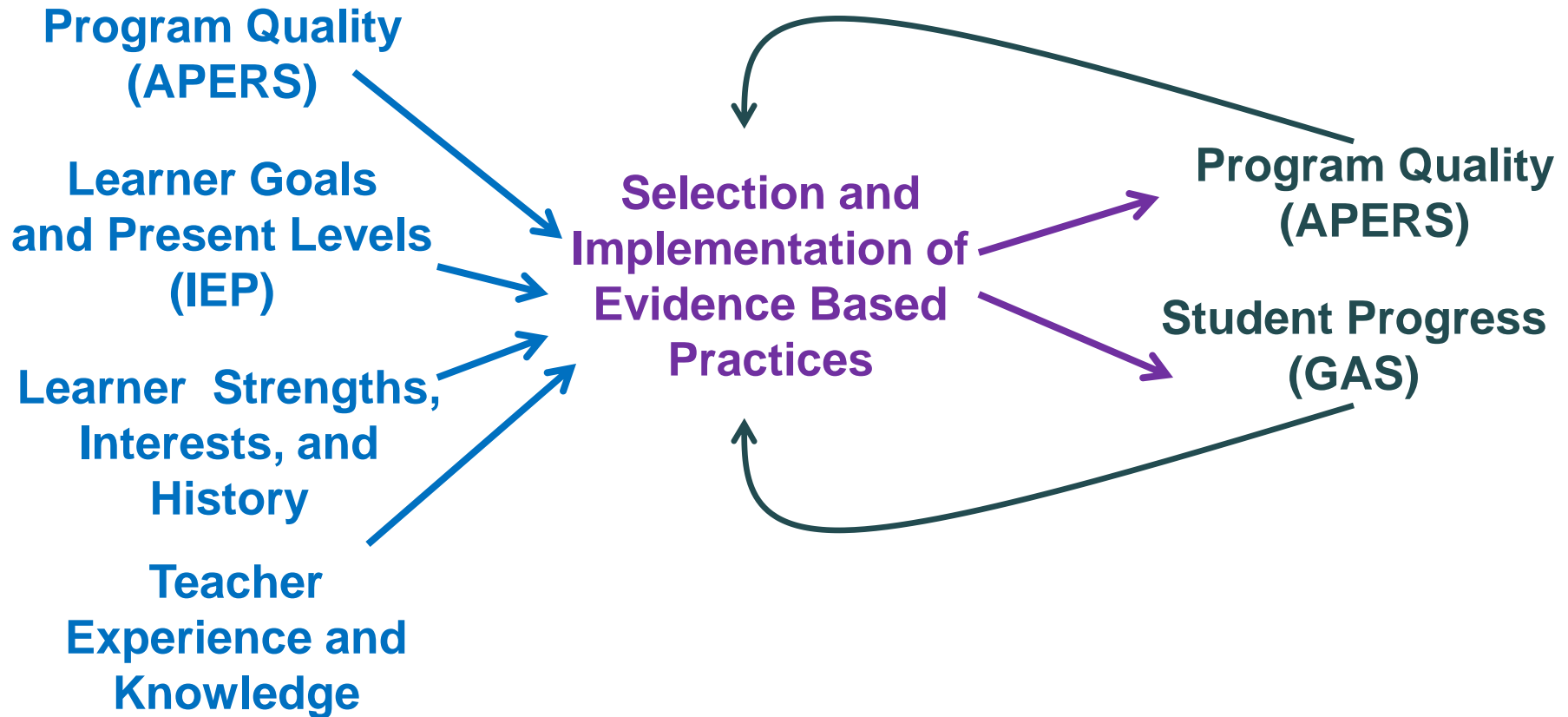


# Implementation for Learners with ASD

- NPDC model
- Quality of the program
- Attainment of learner goals
- Coaching support



# Assessment → Implementation → Outcomes



# Program Quality



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# Why is Quality Program Important?

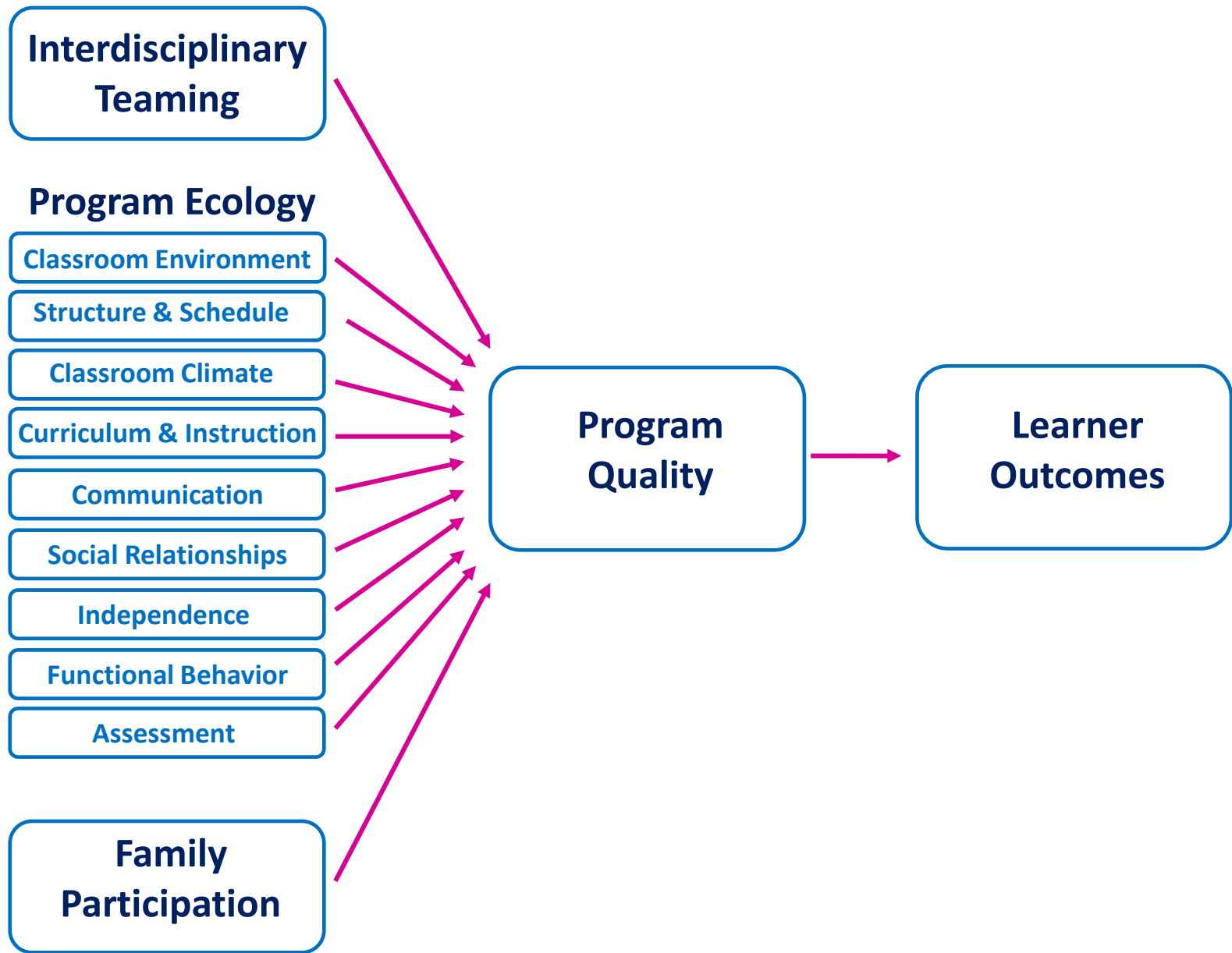
- The quality of programs contributes to student outcomes.
- Quality programs provide the foundation upon which EBP can be successfully implemented.
- Quality indicators of programs can be captured through observation and interview.
- Program quality can be improved through training and technical assistance/coaching.



# How Do We Assess for Indicators of Program Quality?

- ***Autism Program Environment Rating Scale (APERS)***
  - Designed to assess quality indicators of programs for children and youth the ASD
  - Purposes of the APERS
    - Program evaluation
    - Consultation
    - Self-evaluation
    - Professional development



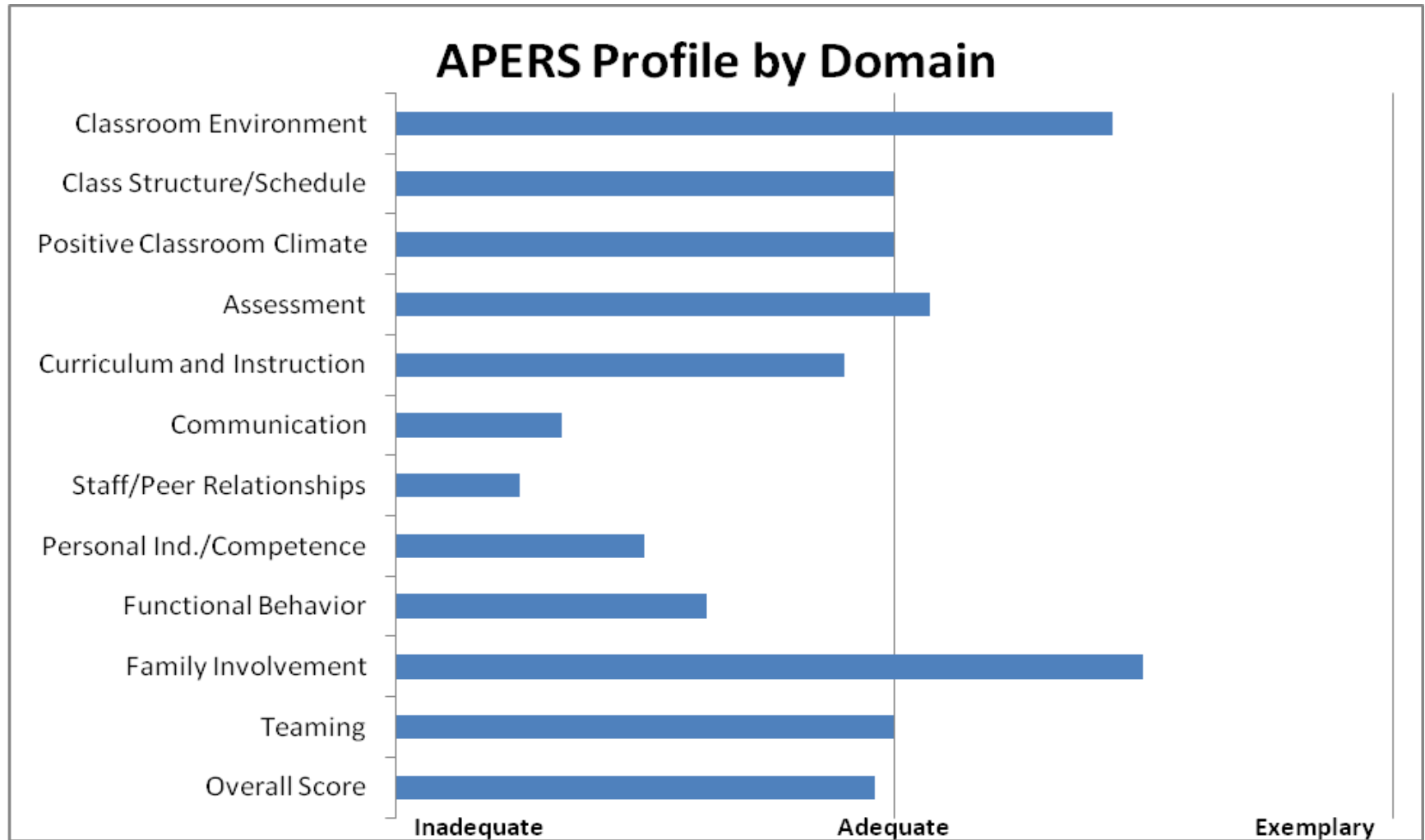


# Features of APERS

- Two APERS formats: PE; MHS
- Organized by domains and subdomains
- Applicable in self-contained and inclusive programs
- Score obtained by
  - observing classroom(s) and
  - conducting interviews (teacher, team member, parent)
- Scored on a five-point scale with behavioral anchors at three points
- Results can be summarized by scores or graphs



# Autism Program Environment Rating Scale



# How Do We Use The APERS?

- Complete APERS at the start of the school year (baseline).
- Use baseline data to improve the quality of programs for learners with ASD through training and coaching.
- Repeat APERS at the end of school year to measure program improvement.



# Student Goal Attainment



# Selecting Learner Goals

- Review student's IEP Goals with teacher/parents
- Identify 3 priority goals for each target student
  - must be area of focus for entire school year
  - must be observable and measurable
  - must be agreed to by family and team
- Make modifications as needed
  - case conference or making an addendum



# Examining Learner's IEP Goals: Goal Attainment Scale (GAS)

- Goal Attainment Scale (GAS) is designed to document progress on IEP goals, objectives, and benchmarks.
- Has a long history in fields of mental health, education, geriatric care
- Provides a summative rating to evaluate outcomes



# Description of Scaling

- Establish a five point range of performance for students:
  - Much less than expected (*present level of performance*)
  - Somewhat less than expected (*benchmark*)
  - Expected level of outcome (*annual goal*)
  - Somewhat more than expected
  - Much more than expected



<p><b>Much less than expected</b> <i>(Present Level of Performance)</i></p>	<p>When he enters classroom EJ does not greet his peers or professionals</p>
<p><b>Somewhat less than expected</b> <i>(Benchmark)</i></p>	<p>When entering the classroom in the morning and with a verbal prompt and picture cue , EJ will greet at least one peer by saying “hi” or waving for 4/5 mornings for a week</p>
<p><b>Expected level of outcome</b> <i>(Annual Goal)</i></p>	<p>When entering the classroom in the morning and with a visual prompt, EJ will greet at least one peer by saying “hi” or waving for 4/5 mornings for 2 consecutive weeks.</p>
<p><b>Somewhat more than expected</b> <i>(Exceeds annual goal)</i></p>	<p>When entering the classroom in the morning without a prompt, EJ will greet at least one peer by saying “hi” or waving for 4/5 mornings for 2 consecutive weeks.</p>
<p><b>Much more than expected</b> <i>(Far exceeds annual goal)</i></p>	<p>When entering school in the morning and without a prompt, EJ will greet at least one peer and one non-classroom professional by saying “hi” or waving for 4/5 mornings for 2 consecutive weeks.</p>



# How Do We Use GAS?

- Select learning objective/benchmark with a defined continuum of outcomes.
- Identify outcomes that reflect the five points on the continuum noted.
- Identify the current level of performance.
- Use the continuum to evaluate growth on a designated schedule (monthly, bimonthly).
- Use GAS to determine final outcome at end of learning period (end of the year).



# **Influencing EBP Implementation, Program Quality, and Student Goal Attainment Through . . .**

## **COACHING**



# Coaching in the NPDC Model

- Process used to support how teachers/team assess, address, and implement strategies
- Coaches visit classrooms at least one day a month, sometimes more often
- Coach on areas for improvement in program quality
- Coach on EBP selection and implementation



# What is Coaching?

- Form of embedded sustained professional development used to:
  - Refine existing skills and/or acquire new teaching skills in EBP
- Coaching is a vehicle to develop:
  - An ongoing, confidential relationship that encourages recognition of individual expertise and professional growth



# Coaching – Promising Practice

Coaching leads to . . .

- Improvement in instructional capacity - increasing teachers' ability to apply what they have learned to their work with students
- Improvement in the instructional culture of the school
- A focus on content which encourages the use of data to inform practice

The Annenberg Institute for School Reform, 2004



# Training Outcomes Related to Training Components

<i>Training Components</i>	<b>Training Outcomes</b>		
	<b>Knowledge of Content</b>	<b>Skill Implementation</b>	<b>Classroom Application</b>
<i>Presentation/ Lecture</i>	10%	5%	0%
<i>Plus Demonstration in Training</i>	30%	20%	0%
<i>Plus Practice in Training</i>	60%	60%	5%
<i>Plus Coaching/ Admin Support Data Feedback</i>	95%	95%	95%



# Two Types of Coaching

- **Mentor:** coach shares expertise and guidance with the professional; coach provides direction for interaction
- **Peer:** Each member of coaching dyad coaches the other, guiding collaboration



# Coaching Process

- **Pre-observation conference**: to identify need, set up for observation, identify intended outcomes
- **Observation**: collect data about activity, teaching, strategy implementation
- **Post-observation conference**: share results of observation, identify areas for improvement, provide feedback and reinforcement, debrief



# What is the impact of our work thusfar?



# *What do the data\*\* tell us . . .*

- about teacher use of evidence-based practices?
- about improvements in overall program quality?
- about student goal attainment?

***\*\*Data are presented from Cohort 1 (both years) and Cohort 2 (first year) states from Fall 2008 through Spring 2010.***

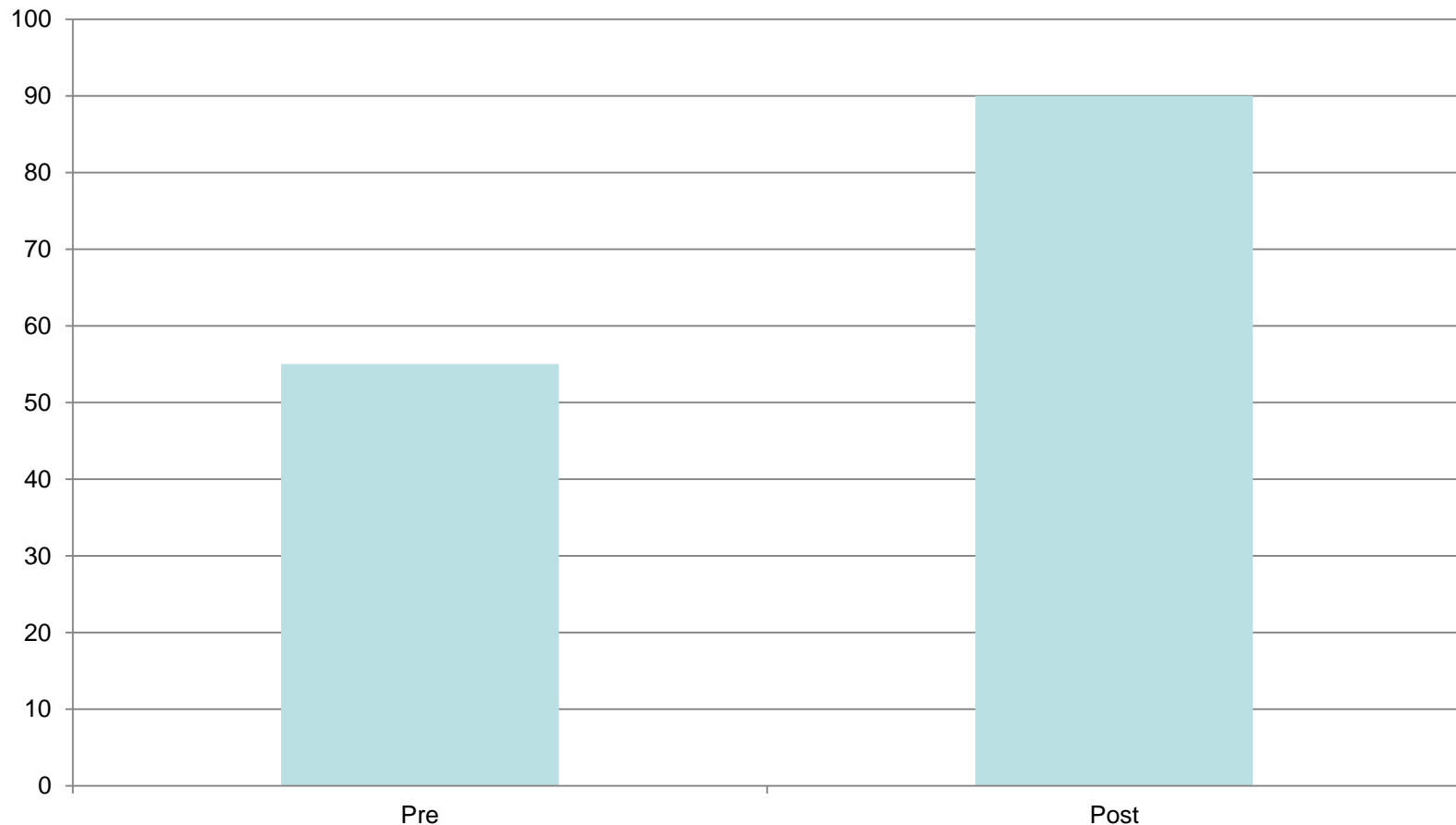


# Teacher Use of Evidence-based Practices



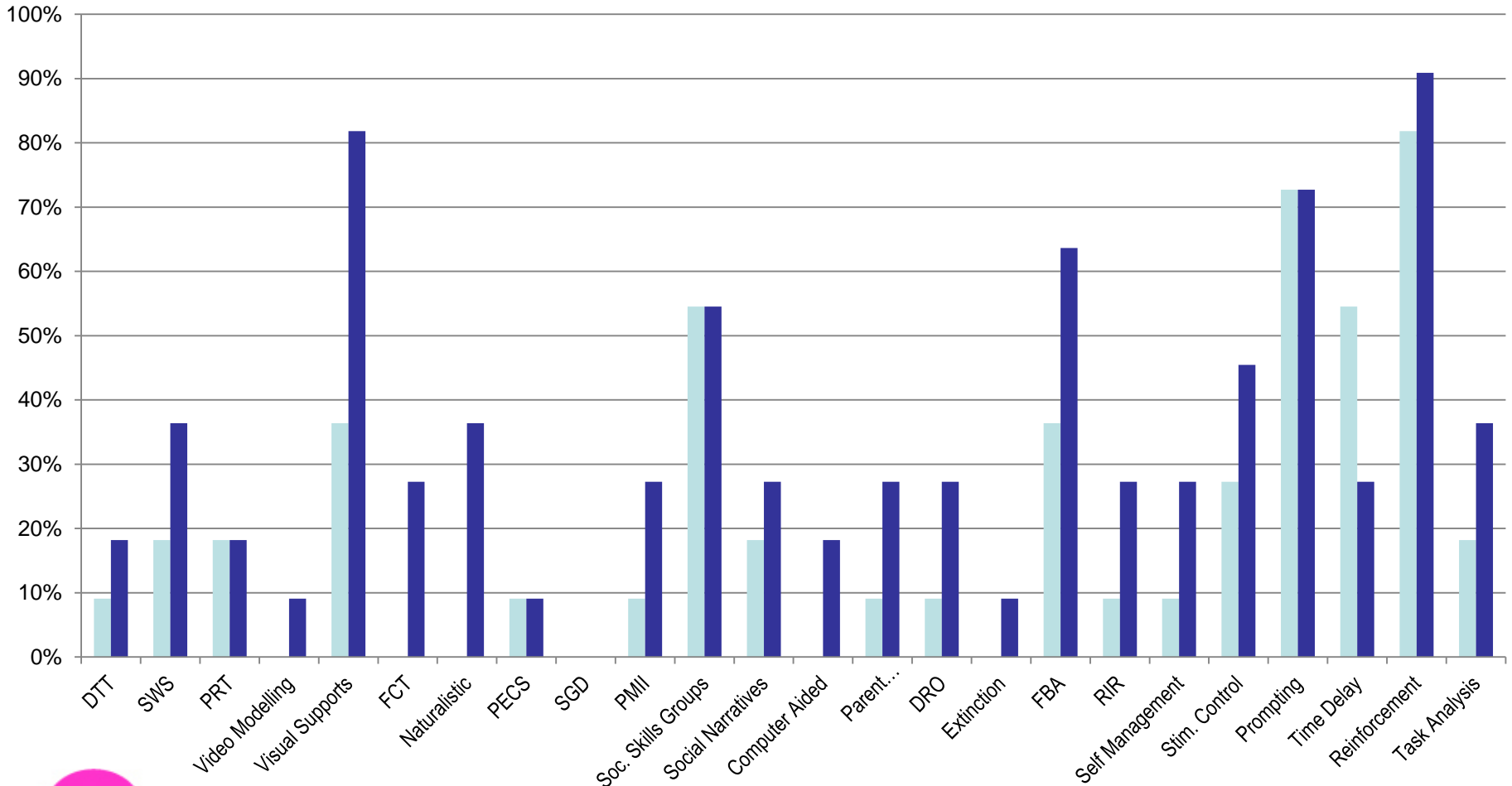
# Use of Evidence-Based Practices

Number of EBPs used by Teachers Across All Year 1 Sites



# Use of Evidence-Based Practices

Percentage of Teachers Using Each Evidence-Based Practice ■ Pre ■ Post

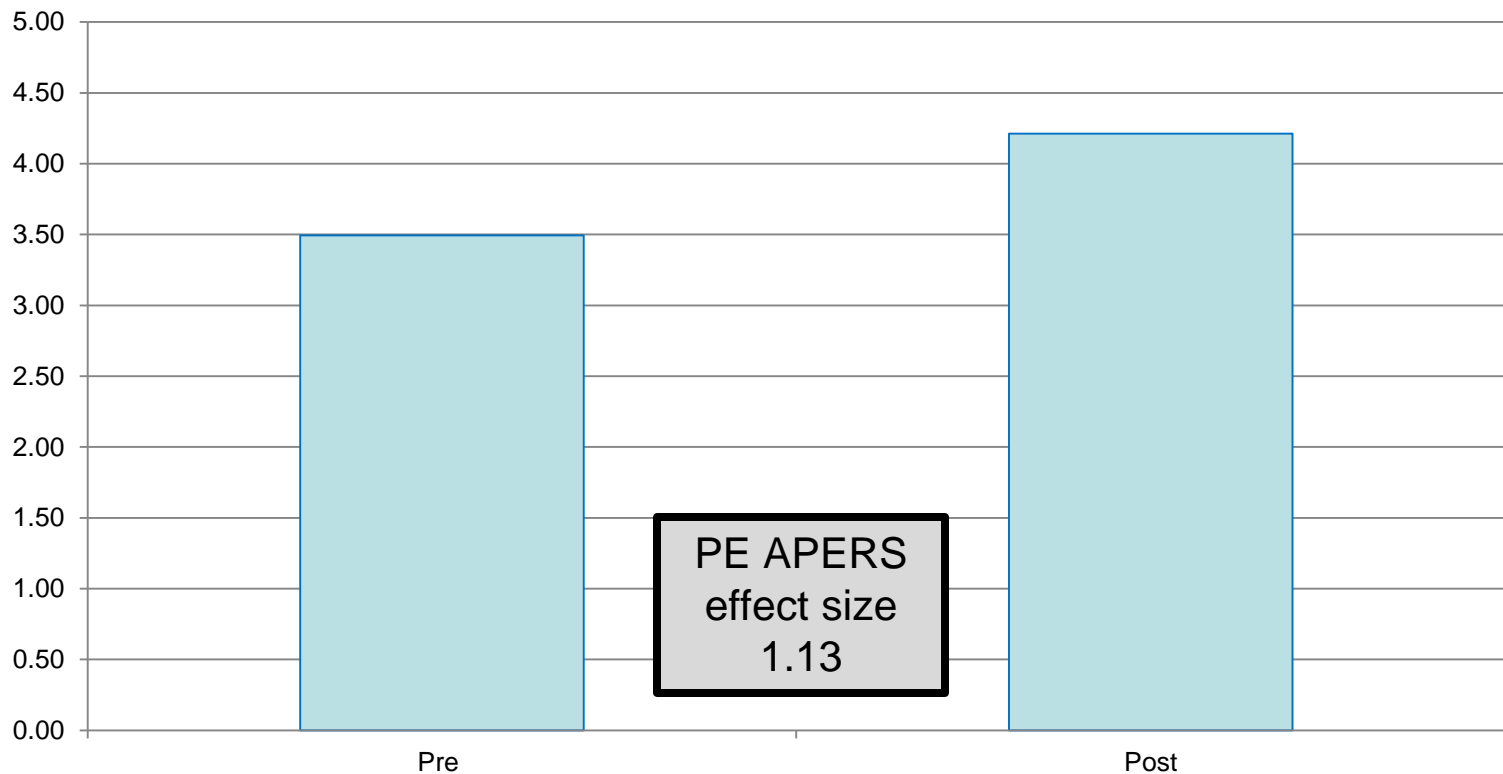


# Program Quality



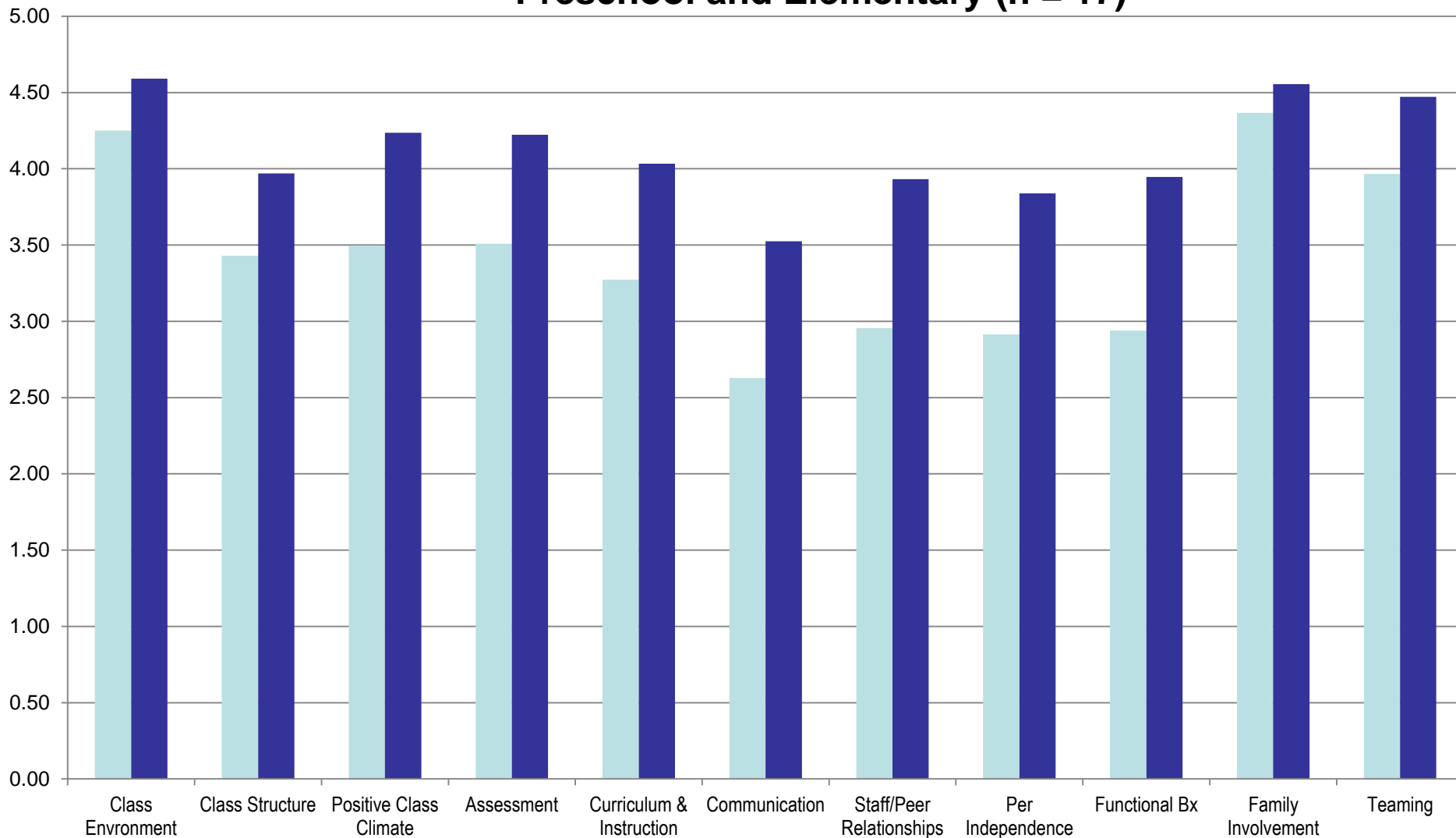
# Preschool/Elementary APERS Scores

Mean Total APERS Scores:  
Preschool and Elementary (n = 17)



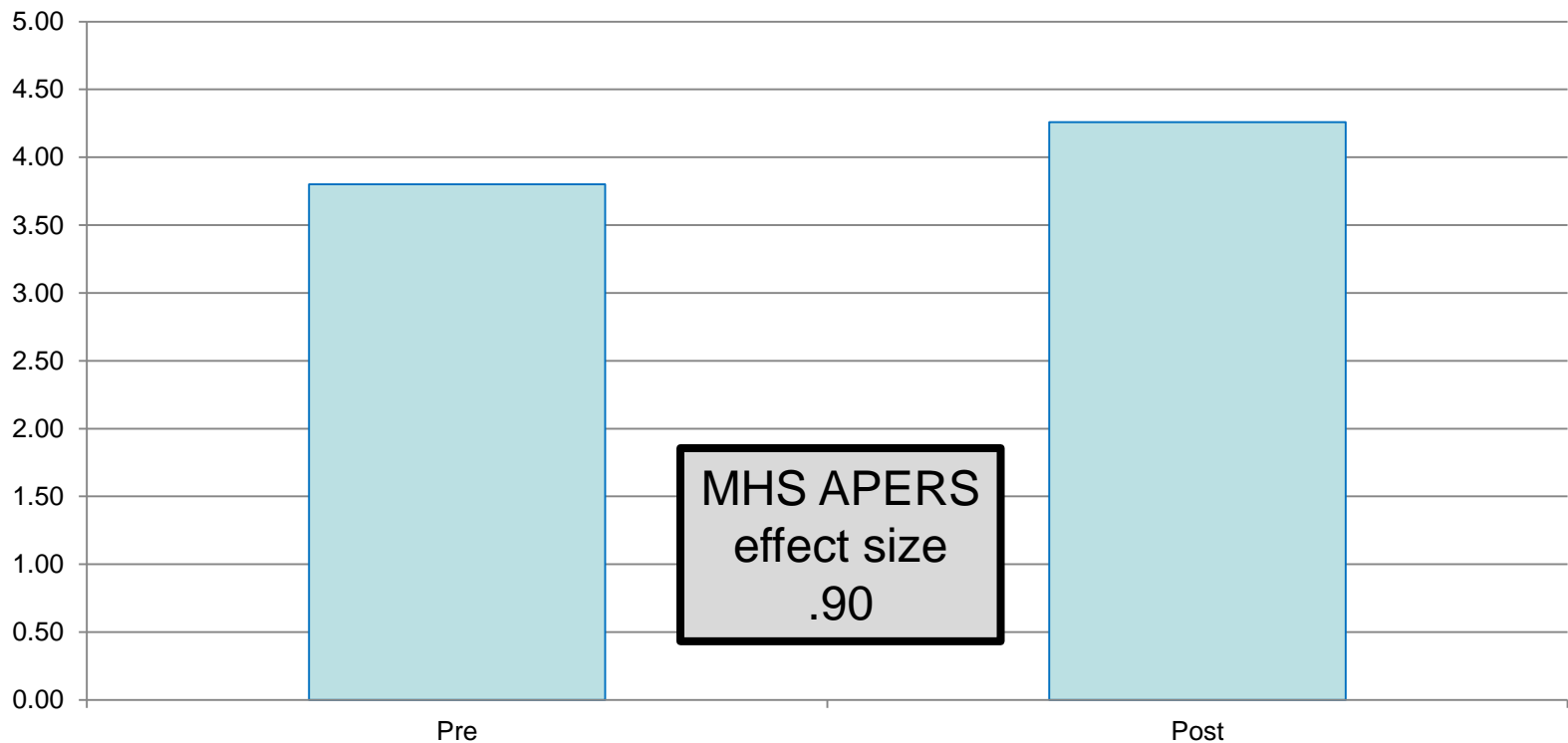
## Mean APERS Domain Scores: Preschool and Elementary (n = 17)

Pre  
Post



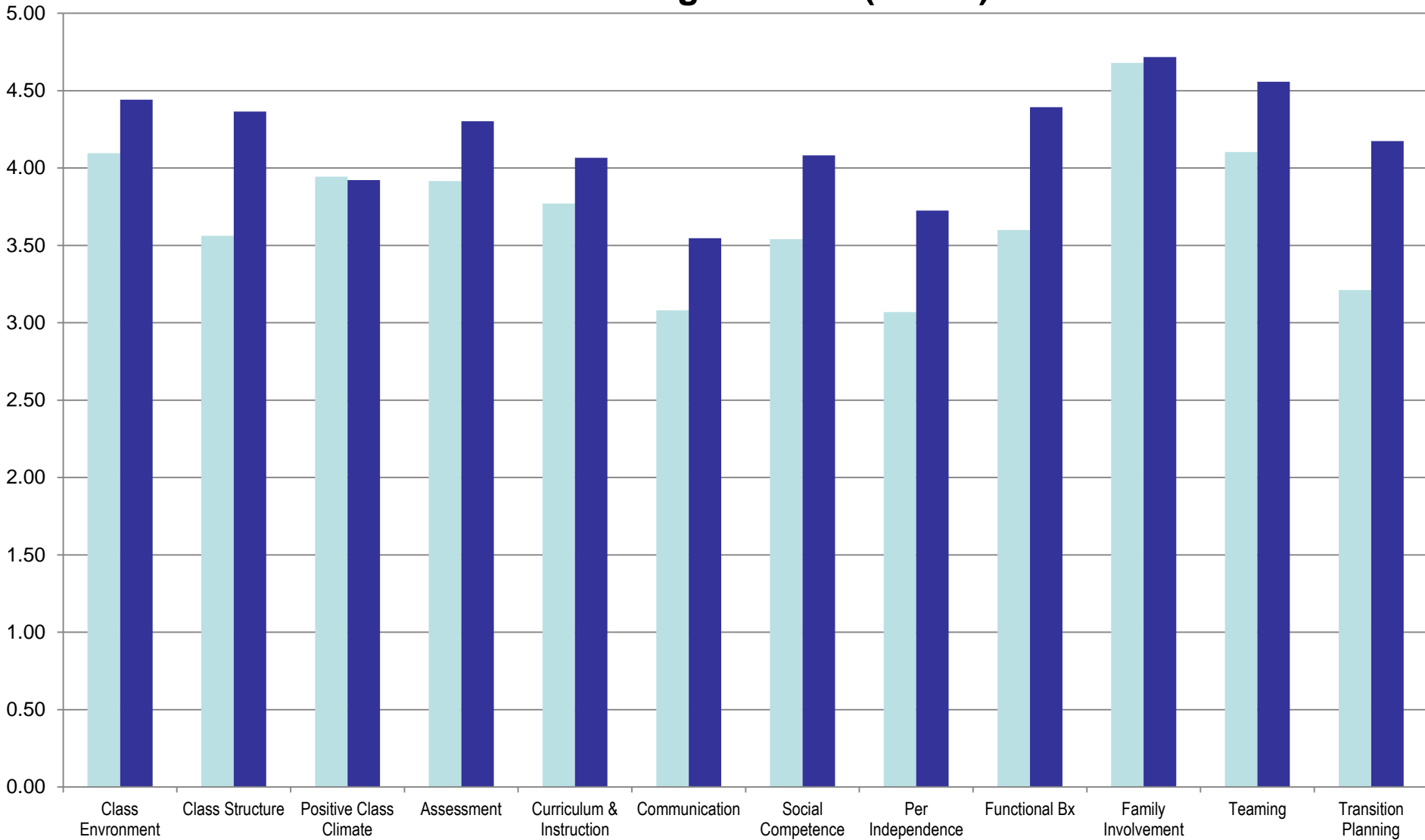
# Middle/High School APERS Scores

**Mean Total APERS Scores:  
Middle and High School (n = 16)**



# Mean APERS Domain Scores: Middle and High School (n = 16)

Pre  
Post

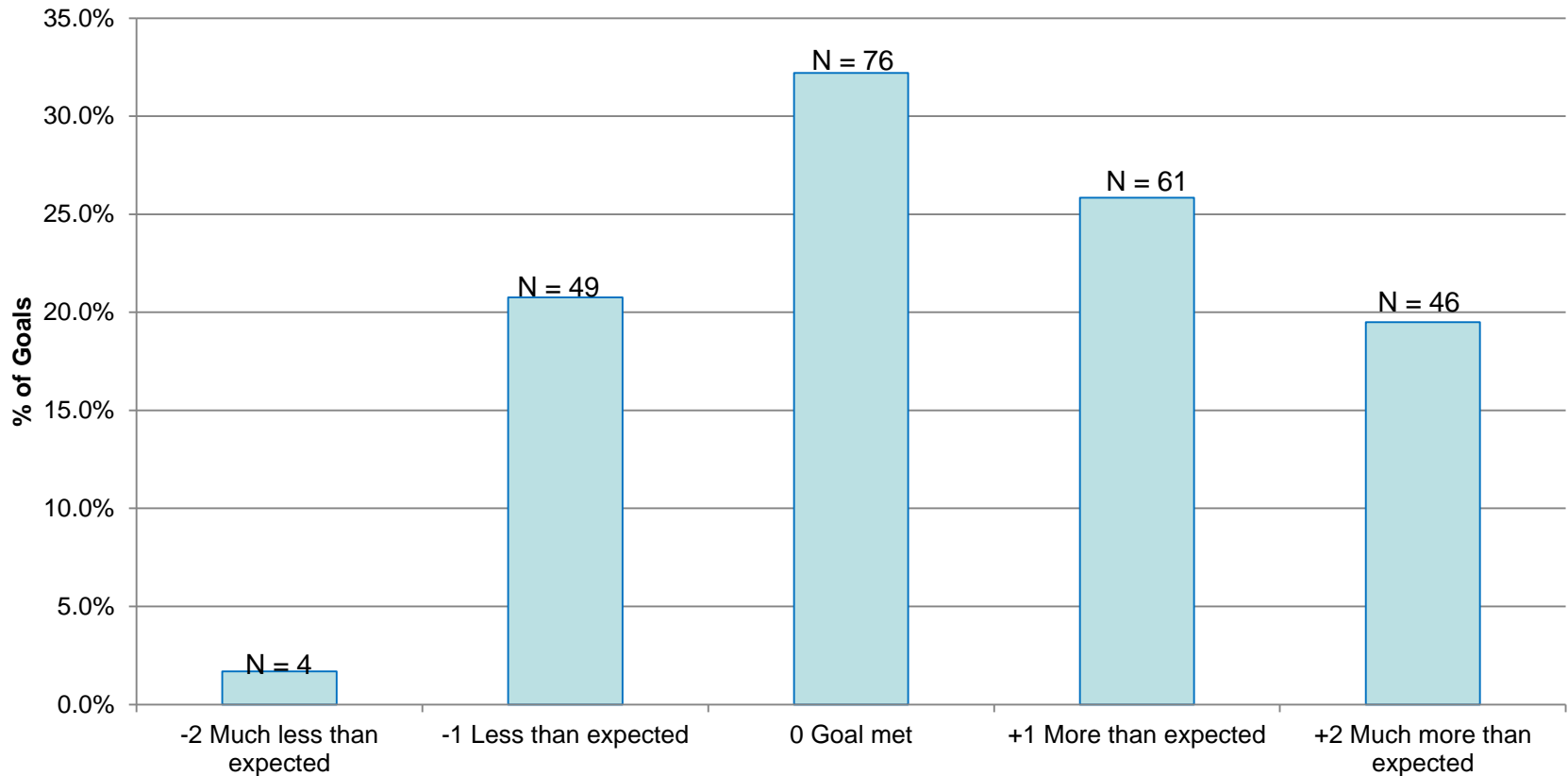


# Attainment of Learner Goals



# Goal Attainment Scaling Results and Graphs

**GAS Outcomes (N = 236)**



# Questions and Discussion

