

Promoting Use of Evidence-Based Practices for Learners with Autism Spectrum Disorders

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**The National Professional Development Center
on Autism Spectrum Disorders**

**Cooperative Agreement H 35G 070004
U.S. Department of Education, Office of Special Education Programs**



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**



THE NATIONAL PROFESSIONAL DEVELOPMENT CENTER ON
AUTISM SPECTRUM DISORDERS

Cooperative Agreement H 35G 070004
U.S. Department of Education
Office of Special Education Programs

National Professional Development Center on Autism Spectrum Disorders: Sites

- FPG Child Development Institute, University of North Carolina at Chapel Hill
 - FPG : Sam Odom and Ann Cox
- Waisman Center, University of Wisconsin at Madison
 - Len Abbeduto and Linda Tuchman-Ginsberg
- M.I.N.D. Institute, University of California at Davis Medical School
 - Sally Rogers and Sally Ozonoff



Need for Professional Development Related to ASD Pushed By

- Rapidly increasing numbers of children identified as having ASD
- Emerging base of evidence about effective practices
- Responsibility of public school system to provide a free and appropriate public education



Need for Professional Development Related to ASD

- Prevalence rates increased from 2/10,000 in 1980s to 1/150 in 2009
- Dramatic increase in numbers of children with ASD in public schools
- Numbers served in 1991
 - 5415 children from 6-22
- Numbers Served in 2004
 - 166,424 children from 6-22
 - 25,929 children from 3-5



Growing Agreement on Efficacious Practices

- National Academy of Sciences Committee
- National Standards Project
- Range of reviews and syntheses
- Evidence-based education movement



Challenge of Promoting Use of Evidence-Based Practice by Teachers

- Lack of ASD specific training for many teachers
- Introduction of innovation into public school system
- Support and sustainability



Goals of the Center

Project goals are organized around four content areas:

1. Content development
2. Professional development
3. Technical assistance
4. Evaluation



Project Goals: Content Development

- Translate information about evidence-based practices into resources for service providers
- Establish and maintain a website

Project Goals: Professional Development

- Provide training to state professional development providers
- Provide training activities to practitioners in participating states
- Establish training sites that model evidence-based practices



Project Goals: Technical Assistance

- Develop outreach program
- Provide ongoing site-based training
- Establish a network of professional development sites, trainees, and national consultants

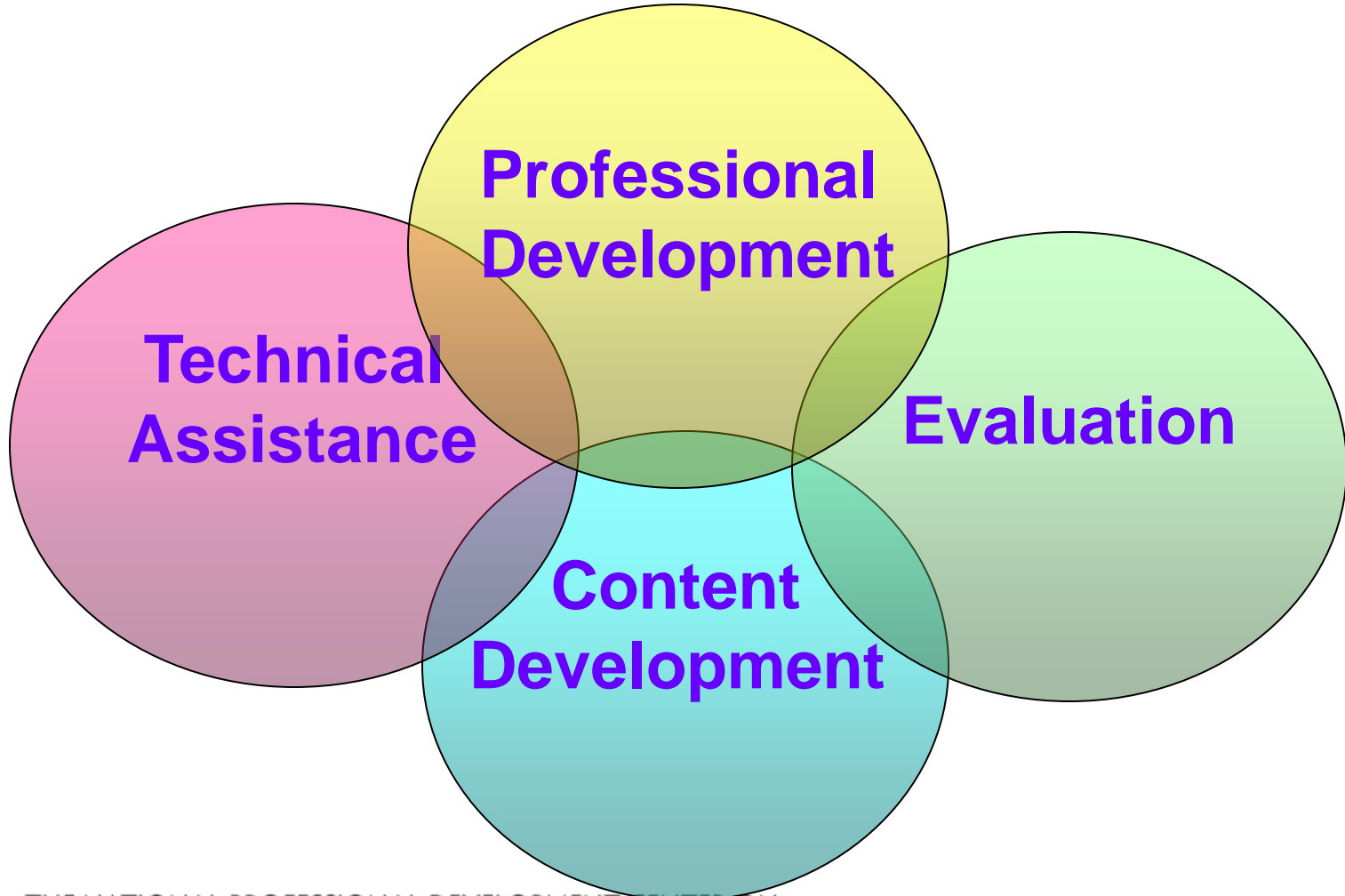


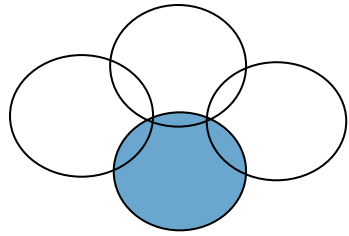
Project Goals: Evaluation

- Assist trainees in establishing a system for implementing EBP
- Collect follow-up data on use of evidence-based practices, practitioner skills, and child and family outcomes



Accomplishment of NPDC: Key Activities

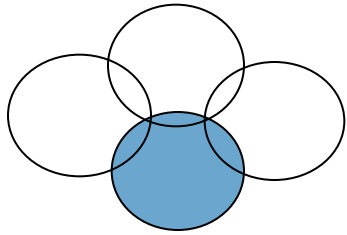




Content Development

- Develop online introductory course on ASD
- Identify/define criteria for evidence
- Identify evidence-based practices
- Develop briefs/modules on evidence-based practices



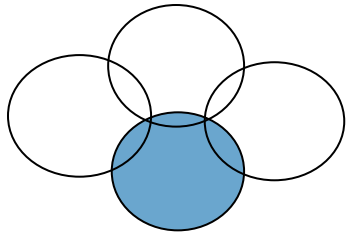


Content Development

Foundations of Autism Spectrum Disorders Online Course

- Eight sessions
- Pre- and post-test for each session
- PowerPoint and narrative formats
- Accessed online using *BlackBoard* platform





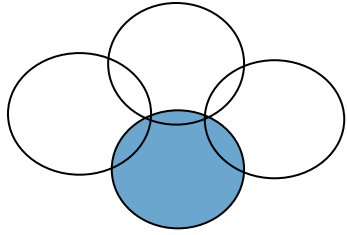
Content Development

Products: Online Introductory Course

Guiding Principles/Recommended Practices

- Understanding ASD
- Family-centered practices
- Use of evidence-based practices
- Interdisciplinary teaming
- Data-driven decision making
- Inclusion
- Providing access
- Transition planning
- Systems change approach



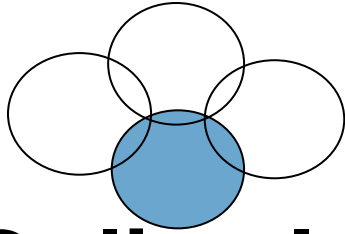


Content Development

Products: Online Introductory Course

- Understanding PDD/ASD
- Characteristics of individuals with ASD
- Assessment
- Guiding principles/ recommended practices
- Learning and development
- Instructional strategies and learning environments
- Foundations of communication and social interventions
- Promoting positive behavior and reducing interfering behaviors





Content Development

Online Introductory Course

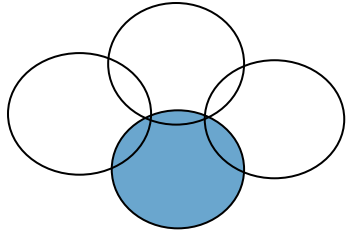
<http://autismpdc.fpg.unc.edu/content/foundations-autism-spectrum-disorders-online-course-content>

The screenshot shows a web browser displaying the course content page. The page header includes the logo and name of 'THE NATIONAL PROFESSIONAL DEVELOPMENT CENTER ON AUTISM SPECTRUM DISORDERS'. Below the header, there is a search bar and a navigation menu. The main content area is titled 'Foundations of Autism Spectrum Disorders Online Course Content' and lists eight sessions with download links for PDFs and presentations. The sessions are:

- Session 1: Understanding Pervasive Developmental Disorders and ASD
- Session 2: Characteristics of Individuals with Autism Spectrum Disorders
- Session 3: Assessment for Autism Spectrum Disorders
- Session 4: Guiding Principles
- Session 5: Factors that Affect Learning and Development
- Session 6: Instructional Strategies and Learning Environments
- Session 7: Foundations of Communication and Social Interactions
- Session 8: Promoting Positive Behavior and Reducing Interfering Behaviors



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AUTISM SPECTRUM DISORDERS



Content Development

Evidence-Based Practices



Selection of Evidence-Based Practices (EBP)

- Intended to use National Standards Project (NSP) literature review as basis for selecting EBP
- NPDC developed criteria for EBP because NSP report was delayed



Process for Identifying EBP

- Established criteria for selection of research studies
- Established criteria for the level of evidence needed for a practice to be considered evidence-based
- Conducted a thorough literature review
- Selected practices that had sufficient evidence base and practical utility



Definition of EBP

To be considered an evidence-based practice (EBP) by The National Professional Development Center on ASD, efficacy must be established through peer-reviewed research in scientific journals using:

- *randomized or quasi-experimental design studies.* Two high quality experimental or quasi-experimental studies,
- *single-subject design studies.* Three different researchers must have conducted five high quality single subject design studies, or
- *combination of evidence.* One high quality randomized or quasi-experimental group design study and three high quality single subject design studies conducted by at least three different investigators or research groups.



EBP Criteria

- High-quality randomized or quasi-experimental design studies do not have critical design flaws that create confounds to the studies and have design features that readers/consumers can use to rule out competing hypotheses for study findings.
- High-quality single-subject design studies have no critical design flaws that create confounds and demonstrate experimental control at least three times.



Basis for EBP Definition and Criteria

- Horner, R., Carr, E., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single subject research to identify evidence-based practice in special education. *Exceptional Children, 71*, 165-180.
- Nathan, P. & Gorman, J. M. (2002). *A guide to treatments that work*. NY: Oxford University Press.
- Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. D., Thompson, B., Harris, K. (2004). *Quality indicators for research in special education and guidelines for evidence-based practices: Executive summary*. Arlington, VA: Council for Exceptional Children Division for Research.
- Rogers, S. J., & Vismara, L. A. (2008). Evidence based comprehensive treatments for early autism. *Journal of Child Clinical Psychology, 37(1)*, 8-38.



Evidence-based Practice	Early Childhood (2-5 yrs.)	Elementary (6-12 yrs.)	Middle School (13-15 yrs.)	High School (16-21 yrs.)
1. Computer-aided instruction				
2. Differential reinforcement (DRA/I/O/L)				
3. Discrete trial training (DTT)				
4. Extinction				
5. Functional behavior assessment (FBA)				
6. Functional communication training (FCT)				
7. Naturalistic interventions				
8. Parent-implemented interventions				
9. Peer-mediated instruction/intervention (PMII)				
10. Picture exchange communication system (PECS)				
11. Pivotal response training (PRT)				
12. Prompting				
13. Reinforcement				
14. Response interruption/redirection				
15. Self-management				
16. Social narratives				
17. Social skills training groups				
18. Speech generating devices (SGD)/VOCA				
19. Stimulus control				
20. Structured work systems				
21. Task analysis and chaining				
22. Time delay				
23. Video modeling				
24. Visual supports				

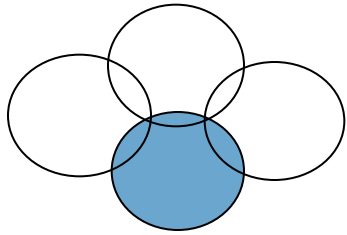
Shading indicates that the studies making up the evidence base for the practice included children and youth from these age groupings.

Disclaimer: The review completed by the NPDC on ASD was not exhaustive. It is possible that yet unidentified evidence exists for practices and ages not indicated above.

EBP for Students with ASD

- Antecedent-Based Interventions (ABI)
- Computer-Aided Instruction
- Differential Reinforcement
- Discrete Trial Training
- Extinction
- Functional Behavior Assessment
- Functional Communication Training
- Naturalistic Intervention
- Parent-Implemented Interventions
- Peer-Mediated Instruction and Intervention
- Picture Exchange Communication System (PECS)
- Pivotal Response Training
- Prompting
- Reinforcement
- Response Interruption/Redirection
- Self-Management
- Social Narratives
- Social Skills Groups
- Speech Generating Devices/VOCA
- Structured Work Systems
- Task Analysis
- Time Delay
- Video Modeling
- Visual Supports



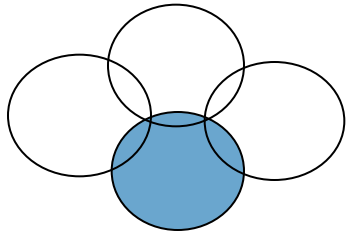


Content Development

Evidence-Based Practice Briefs

- Developed for all 24 EBP
- Provide content to states while modules are still under development
- All briefs contain:
 - Evidence base supporting the effectiveness of the practice
 - Overview describing the practice
 - Steps for implementation
 - Fidelity implementation checklist





Content Development

Web-Based Module Content

- Pre-Test/Post-Test
- Contextual Information
- Step-by-Step Instructions
- Case Examples
- Video Examples
- Implementation Checklist
- Summary of Evidence Base
- Resources



Collaboration with OCALI and Partners for Module Development

<http://www.autisminternetmodules.org/>

AUTISM INTERNET MODULES

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MODULE LIST

FORGOT PASSWORD?

HELP



LOGIN

EMAIL

PASSWORD

Login

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WELCOME TO AIM

HIGHLIGHTED MODULES



STRUCTURED WORK SYSTEMS AND ACTIVITY ORGANIZATION

Individuals with autism spectrum disorders (ASD) thrive in well-organized situations. Environments that provide clear expectations and predictable routines promote increased engagement and on-task behavior. Creating such environments often involves the use of individual work systems.

This module will define individual work systems, offer strategies for developing such systems, and discuss how these systems might be used at home, school, work, and in the community.



PEER-MEDIATED INSTRUCTION AND INTERVENTION (PMII) FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS

Social impairment and difficulty with social reciprocity – or understanding the back-and-forth nature of social interactions – is perhaps the single most defining feature of autism. Peer-mediated instructional approaches can address social concerns by teaching children and youth with ASD

new social skills and increasing social opportunities within natural environments, often a primary goal of families. This module will explain **peer-mediated instruction and**

AIM COLLABORATING PARTNERS

OCALI | Educational Service Center of Central Ohio



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Introduction

Pre-Assessment

Overview

Learner Objectives

What is Peer-Mediated Instruction and Intervention (PMII)?

Who Can Use PMII and How Does it Work?

PMII for Early Childhood: Peer Initiation Training

Steps 1 and 2

Steps 3 and 4

Step 5

Video Examples

Putting it All Together

Late Elementary through High School: Peer Social Networking

Frequently Asked Questions (FAQ)

Summary

Evidence Base for PMII

References and Citation

Post-Assessment

RESOURCES

Step-by-Step Instructions

HOME > Peer-Mediated Instruction and Intervention (PMII) for Children with Autism Spectrum Disorders > PMII for Early Childhood: Peer Initiation Training > Video Examples

VIDEO EXAMPLES

The first two videos should be viewed after completing the content for Steps 1 and 2. The first is a training session video, the second is a practice session video. The third video should be viewed after completing the content for Step 5.

MOVIE: PEER INITIATION TRAINING SESSION



[Play Movie](#) | [Stop Movie](#) | [Skip Movie Back](#) | [Skip Movie Forward](#) | [Start Movie Over](#)

MOVIE TRANSCRIPT

Adult: "What's your name?"

Sam: "Sam"

Adult: "Sam, and what is your name?"

[[Download Movie Transcript \(PDF\)](#) | [Download Quicktime Media Player](#)]

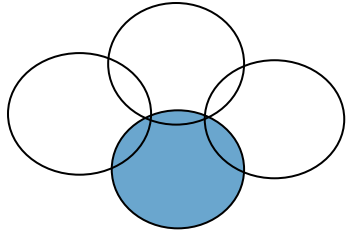
TEXT SIZE

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SEARCH GLOSSARY

GO





Content Development

Evaluation

- Development of Assessment Instruments
 - Autism Program Environment Rating Scale (APERS)
 - Evidence-Based Practices Inventory
 - Fidelity Implementation Checklists
 - Goal Attainment Scaling
 - Family Program Questionnaire



Developing an Assessment to Evaluate Program Quality

- *Autism Program Environment Rating Scale (APERS)*
- Observational tool used to evaluate programs that serve children and youth with ASD
- Two versions developed:
 - APERS-Preschool/Elementary
 - APERS- Middle/High School



Rationale for Developing the APERS

Program Quality

- Contextual features of the program that represents best practices
- Program quality as the house in which practices are employed

EBP

- EBP as specific tools for specific skills
- EBP as the furniture or appliances designed for specific functions



General Quality Indicators

EBP



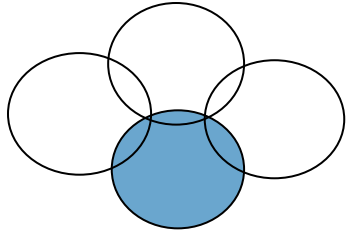
Example

General Quality Indicators

EBP

- Structure/Schedule
- Positive Learning Climate
- Assessment
- Visual Supports
- Peer-mediated Intervention
- Discrete Trial Training



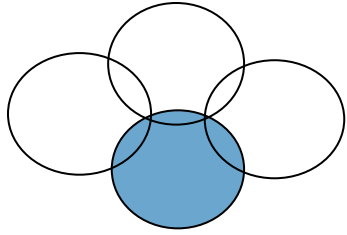


Content Development

Autism Program Environment Rating Scale (APERS)

- Learning Environment
- Positive Learning Climate
- Assessment
- Social Competence
- Personal Independence/Competence
- Promoting Appropriate Behavior
- Family Involvement
- Teaming
- Transition Planning



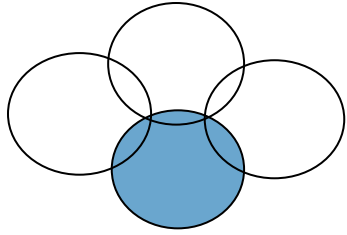


Content Development

Evidence-Based Practice Inventory

- Self-report checklist for members of state autism training teams to rate their familiarity with and use of EBP
- State participants complete the inventory before they begin the online course and after their participation in the project



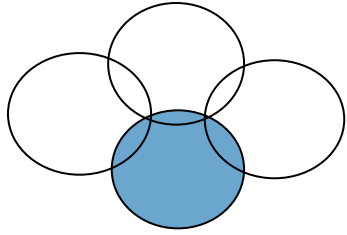


Content Development

Goal Attainment Scale

- Process for measuring attainment of IFSP/IEP goals
- State TA providers, model site practitioners, parents, and NPDC staff identify 3 priority goals for each target student
- Attainment of goals is recorded at pre- and post-test



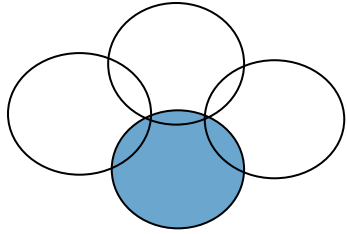


Content Development

Family Program Questionnaire

- Self-report measure for families of children with ASD that documents perceptions of services and supports
- Collected at pre- and post-test



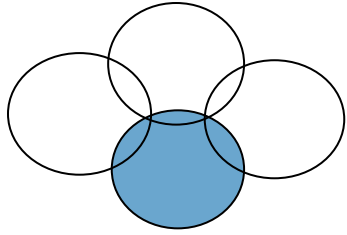


Content Development

Fidelity Implementation Checklists

- Individualized for each EBP
- Developed as part of online modules and EBP briefs
- Used to measure how well practitioners implement practices
- Collected at pre- and post-test on those EBP state TA providers and practitioners identified for each student



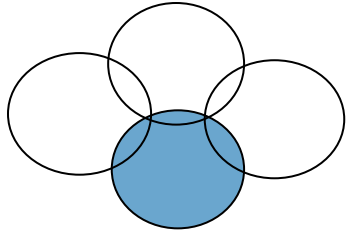


Content Development

Website

- Launched September 2007, revamped 2010
- Provides basic information about the project and state application
- Includes online forums for state partners
- Includes EBP Briefs for all 24 evidence-based practices



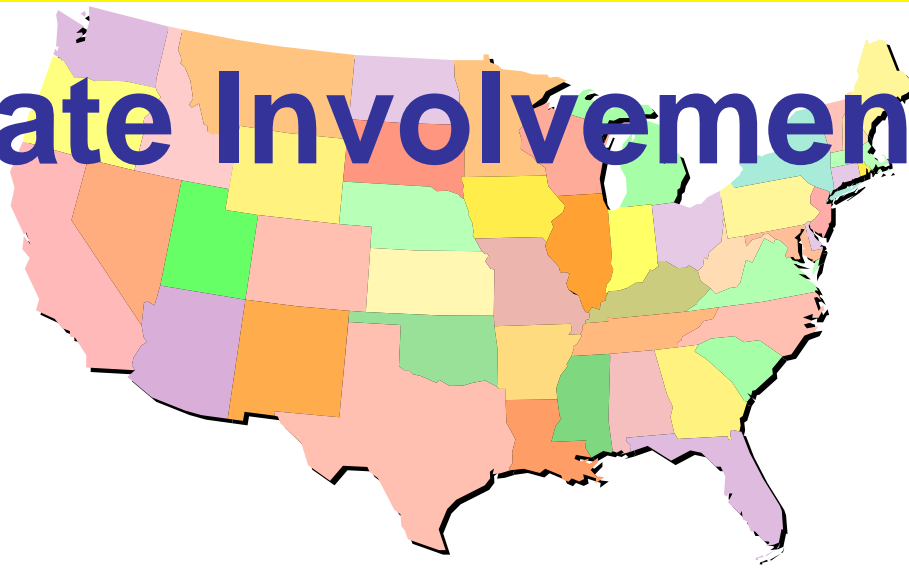


Content Development Products

- Online course
- Web-based Modules
- Assessment Instruments
- Website
- National Network for Information Dissemination



State Involvement



- Year 1, Cohort 1: Master content and process in collaboration with NPDC staff: IN, NM, WI
- Years 2-4: States complete competitive application
 - Year 2, Cohort 2: KY, MN, MI
 - Year 3, Cohort 3: CA, TX, VA
 - Year 4, Cohort 4: ???
- Total number of states served: 12



Key Activities with States

- Assemble a planning team consisting of key stakeholders and policymakers in the state
- Establish model demonstration sites
- Create a technical assistance team
- Prepare a strategic plan that describes goals and timelines for the state's involvement
- Participate in summer institute
- Conduct ongoing technical assistance
- States take the lead in professional development activities in Year 2



State Application Process

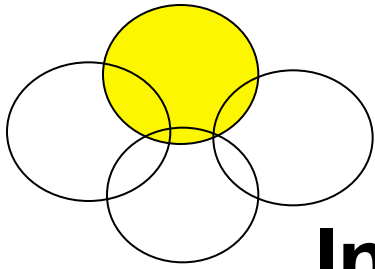
- First year: Selected states based on interest and willingness to participate
- Application process established in Year 1 for remaining years
 - States submit application online (<http://www.fpg.unc.edu/~autismPDC/training/state-partners.cf>)
 - Applications reviewed by three independent reviewers
 - Cohort 4 applications are due June 1, 2010



State Planning Teams

- Establish a state planning team in spring of first year of involvement
- Develop a strategic plan for professional development and technical assistance
- Identify technical assistance support teams, model demonstration sites, and service providers





Professional Development Intensive Summer Institute

1. Increase knowledge of EBP
2. Identify elements of high-quality programs
3. Build networking, collaboration, and skills of members of state autism training team, including model site personnel
4. Develop plans for model sites, technical assistance, and for dissemination across state



Chronology of Model Year 1

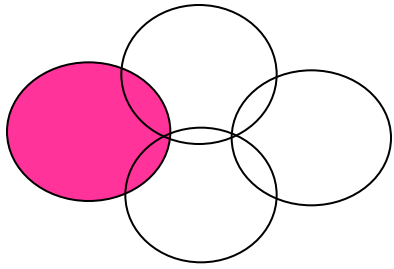
- State application
- Strategic planning with states
- Online course
- Intensive summer institute
 - Strategic planning with team members
- Fall data collection with TA providers and teams
- TA in local context--ongoing across year
- Community of professionals network
- Spring data collection



Chronology of Model Year 2

- State identifies second site for professional development
- Participants complete online course
- Summer institute led by state personnel
 - Strategic planning with teachers
- Fall data collection in classrooms
- TA in local context across the year
- Community of teachers/peer coaching
- Spring data collection and evaluation

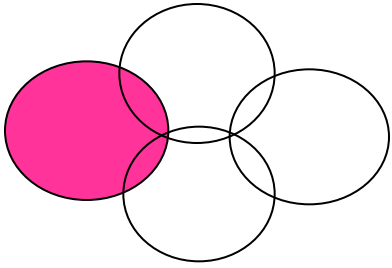




Technical Assistance

1. Development of state strategic plan
2. Development of model sites
3. Use of goal attainment scaling
4. Development of community of practice
5. Onsite coaching/mentoring
 - Development/evaluation of high-quality programs
 - Use of EBP
 - Progress monitoring of target students

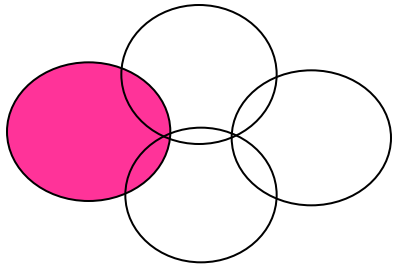




Follow-Up Technical Assistance

- NPDC staff, state TA providers, and model site team members develop a plan for incorporating EBP into their programs
- NPDC staff and state TA providers meet with model site team members
- State TA providers and model site team members establish a schedule for TA

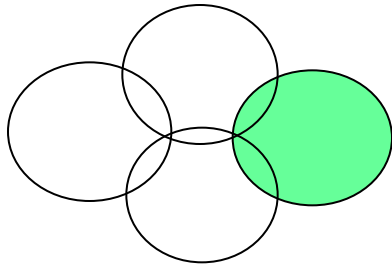




States' Year 2 Involvement

- State personnel take the lead in providing professional development and TA to a new set of model sites
- NPDC collaborates with state staff to administer online course, planning and delivering summer institute, and collecting evaluation data





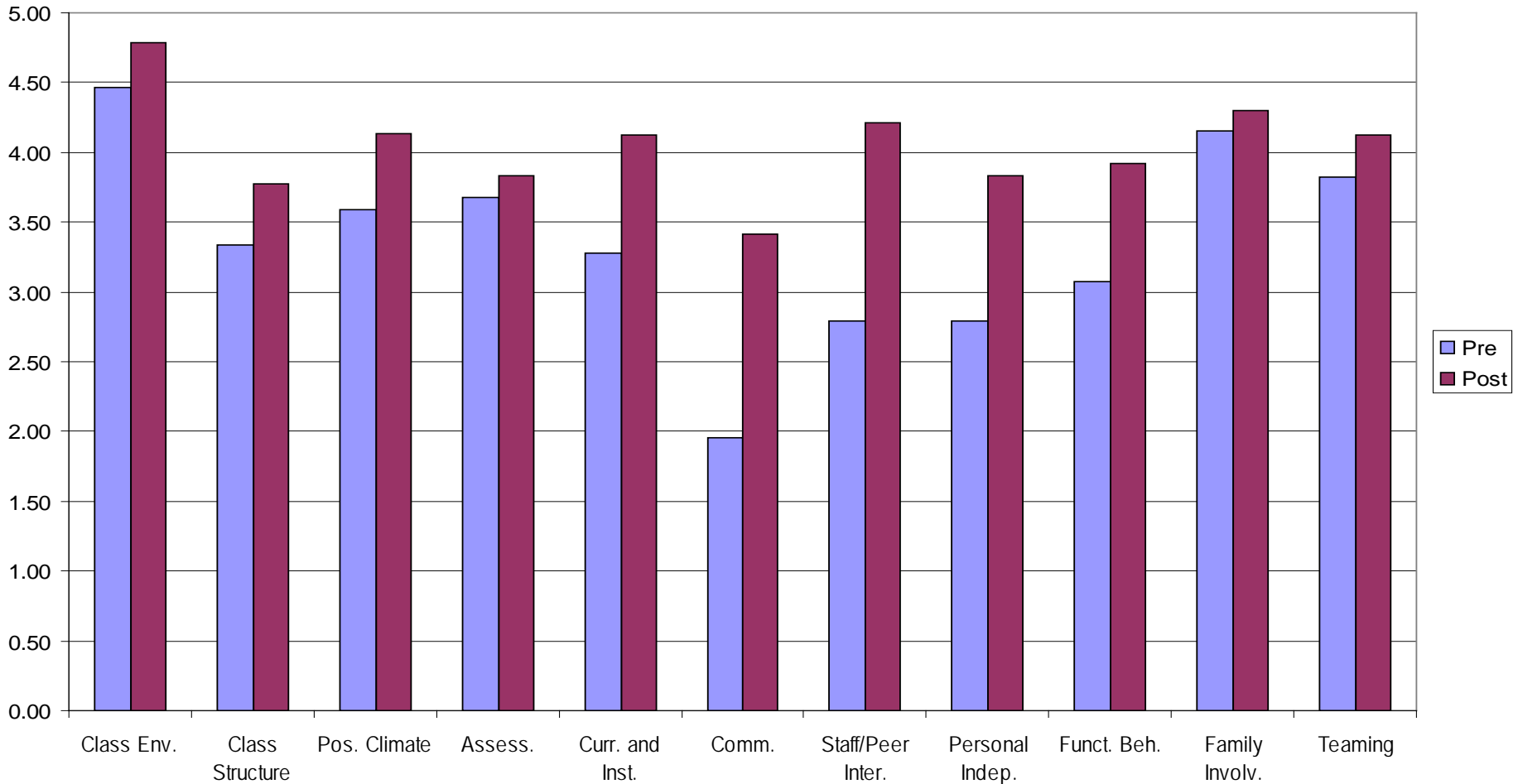
Logic Evaluation Model

- *Resources* needed to complete activities
- *Activities* used to address the problem
- *Outputs* identified as activities are completed
- *Outcomes* that measure the success of activities
- *Impact* of the activities over the long term



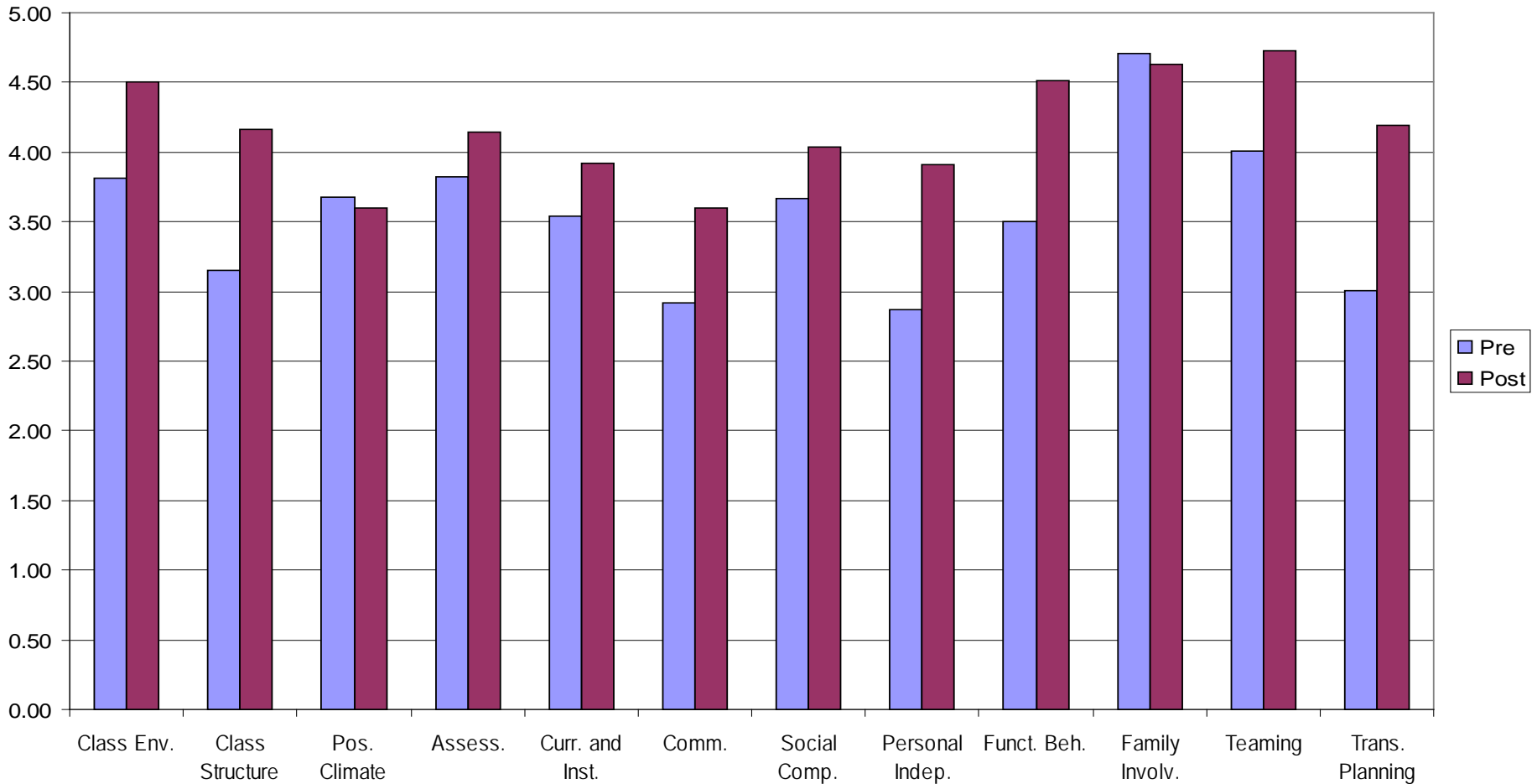
APERS Findings

Mean APERS Subdomain Scores: Preschool/Elementary



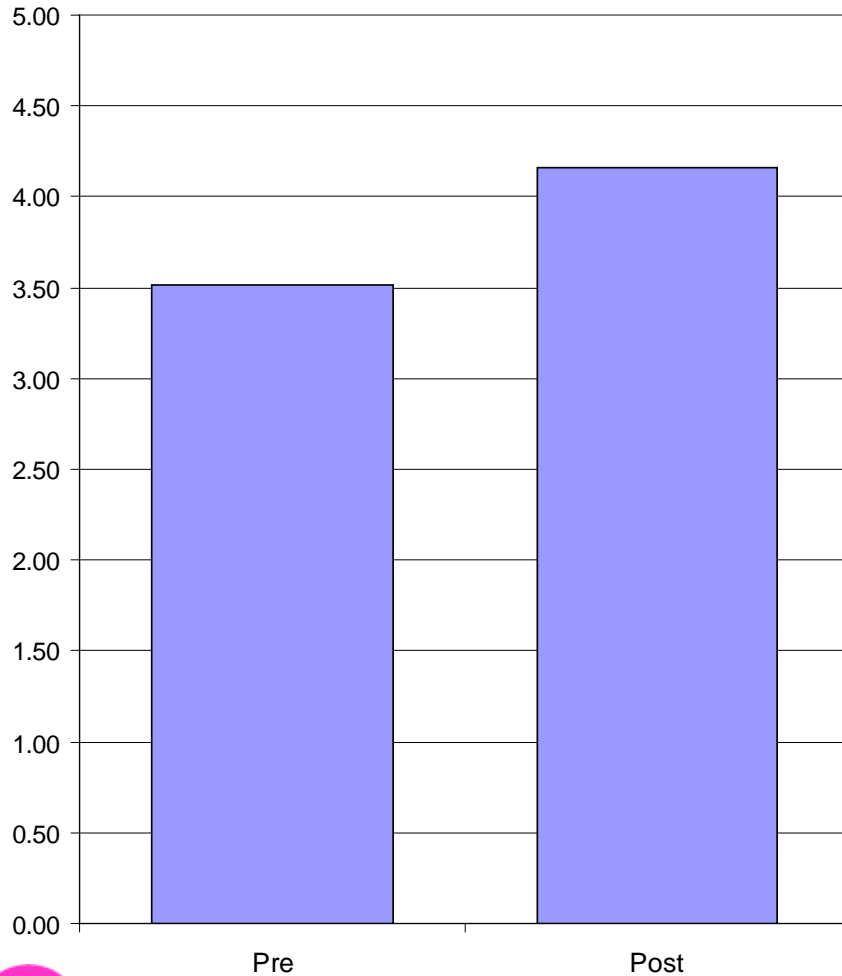
APERS Findings

Mean APERS Subdomain Scores: Middle/High School

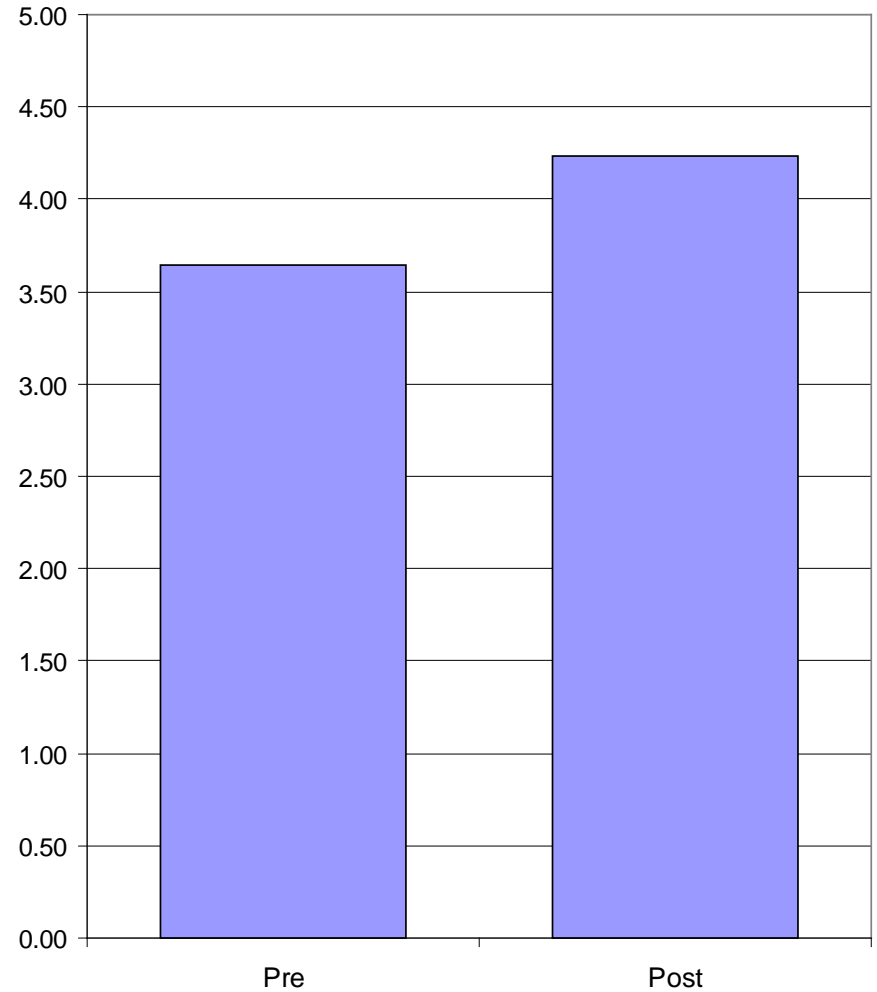


APERS Findings

Mean APERS Total Scores: Preschool/Elementary



Mean APERS Total Scores: Middle/High School



APERS Findings

Mean Effect Size by Model Site	
<i>Site</i>	<i>Effect Size</i>
IN0102IN	0.27
IN0102SC	0.53
IN0103IN	1.03
IN0103SC	0.80
IN0104SC	0.71
WI0202IN	0.82
WI0204IN/SC	0.44
WI0203IN	-0.06
WI0205IN	0.81
NM0303SC	0.98
NM0302SC	1.09
NM0302IN	0.38
IN0102IN	0.27

Mean Effect Size by State	
<i>State</i>	<i>Effect Size</i>
Indiana	0.67
Wisconsin	0.50
New Mexico	0.82

Mean Effect Size by Grade Level	
<i>Grade Level</i>	<i>Effect Size</i>
Pre/Elem.	0.75
Middle/High	0.62



Current Priorities



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Technical Assistance Model

Long Term Goal #1: State TA providers, model site practitioners, and NPDC staff will engage in a collaborative TA process that links assessment, intervention, and evaluation.

Short Term Goal:

1. Further develop the TA model that uses peer coaching as the means for sustaining support to participants

Technical Assistance Model

Long Term Goal #2: Further refinement/development of resources will provide content and procedures needed by state TA providers to implement TA during and after participation in the project.

Short Term Goal:

1. Develop materials focused on the TA model that will be used during summer institutes to outline TA process

Technical Assistance Model

Long Term Goal #3: Refined TA model will provide states with a clear process to sustain professional development and TA activities over time.

Short Term Goals:

1. Adapt current implementation checklists to guide model sites in their implementation of EBP
2. Refine data collection process used to evaluate the TA model



Revision of Products

Long Term Goal #1: A valid set of professional development products will be produced.

Short Term Goals:

1. Ask experts to review resources and procedures to determine content validity
2. Revise EBP resources and procedures based upon feedback from state TA providers, model site practitioners, and experts



<http://autismpdc.fpg.unc.edu/>

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