FPG Child Development Institute
The University of North Carolina at Chapel Hill

early developments

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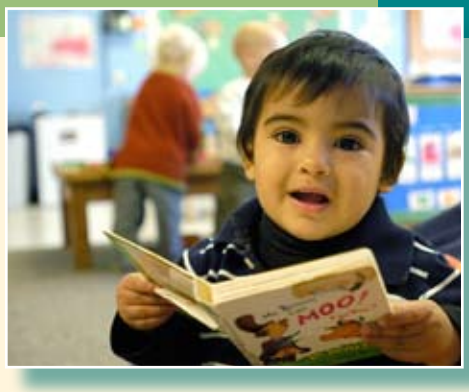
UNC FPG CHILD DEVELOPMENT INSTITUTE

Autism Spectrum Disorders

news



FPG Awarded Postdoctoral Training Grants

The National Center for Special Education Research (NCSER) within the Institute of Education Sciences (IES) recently awarded FPG Director Sam Odom a postdoctoral training grant under its Postdoctoral Research Training Program in Special Education. The postdoctoral fellows will receive training in two research areas: intervention programs for children and youth with ASD, and Response to Intervention (RTI) for children with special educational needs. The primary focus of the training program will be on the development and evaluation of intervention research. The NCSER program was created to increase the supply of scientists and researchers in education who are prepared to conduct rigorous evaluation studies, develop and evaluate new products and approaches that are grounded in a science of learning, design and validate tests and measures for students in special education, and contribute to the advancement of knowledge and theory in special education.

A second postdoctoral training project was recently awarded to Peg Burchinal and Ellen Peisner-Feinberg. This program, also funded by IES, promotes the professional development of research scientists who will contribute to early childhood education and related fields. It follows an apprenticeship model with an experienced mentorship team for each fellow and active engagement in all stages of research across multiple projects.

FPG Launches Research Center for Dual Language Children

FPG Child Development Institute and the U.S. Department of Health and Human Services recently launched The Center for Early Care and Education Research: Dual Language Learners (CECER-DLL). The Child Care Bureau and the Office of Head Start are collaborating with FPG to advance the research field to improve assessment, child care, and education for dual language learners from birth through five years of age. Dina C. Castro is the program's Principal Investigator, and Co-Principal Investigators are Virginia Buysse and Ellen Peisner-Feinberg.

FPG. Advancing knowledge. Enhancing lives.

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Planning the Way Ahead

FPG Child Development Institute's research, outreach, and service make a meaningful difference in the lives of children, families, caregivers, and teachers. More than 200 researchers, outreach specialists, staff, and students work on projects that collectively aim to advance knowledge and enhance the lives of young children and their families. Broadly, FPG focuses much of its work on young children from birth through age eight with particular attention to those with disabilities or who are at risk for later school difficulties.

In 2009, FPG created a strategic plan to guide our work for the next five years. The plan is organized into seven emphasis areas. Some areas represent topics in which FPG has a long history of work while others identify areas for expansion.

Developmental Disabilities. Developmental disabilities can impose significant limitations on the lives of infants, children, and youth and their families. FPG researchers will continue their work to identify the features of disability that potentially impact development and the participation of individuals in society, establish practices that are effective in promoting positive outcomes for children, and use this information to inform policy and practice.

Early Care and Education. Early care and education are fundamental to the nation's success because they allow parents to be more productive and efficient at work while providing a strong foundation for children's school and life success. In the 1970s, one of the first and most influential FPG projects was a longitudinal, random assignment study of the effectiveness of an early care and education intervention for children raised in poverty. In addition, the most commonly used set of quality child care measures was developed by FPG investigators. FPG will follow this important tradition by focusing its efforts on 21ST century advances in early care and education.

International Initiative. Although cultural practices may differ, promotion of child health and development is a central interest of all societies. As an internationally acknowledged institute for child development, FPG engages in projects with collaborators in other countries. In the future, we will continue to establish relationships with child development scientists and practitioners around the world.

Knowledge Utilization, Professional Development, and Systems Change. FPG'S motto is "Advancing knowledge. Enhancing lives." FPG has a strong history of providing professional development to early childhood practitioners, faculty, professional development providers, and state leaders. We are working to ensure that the lives of young children and their

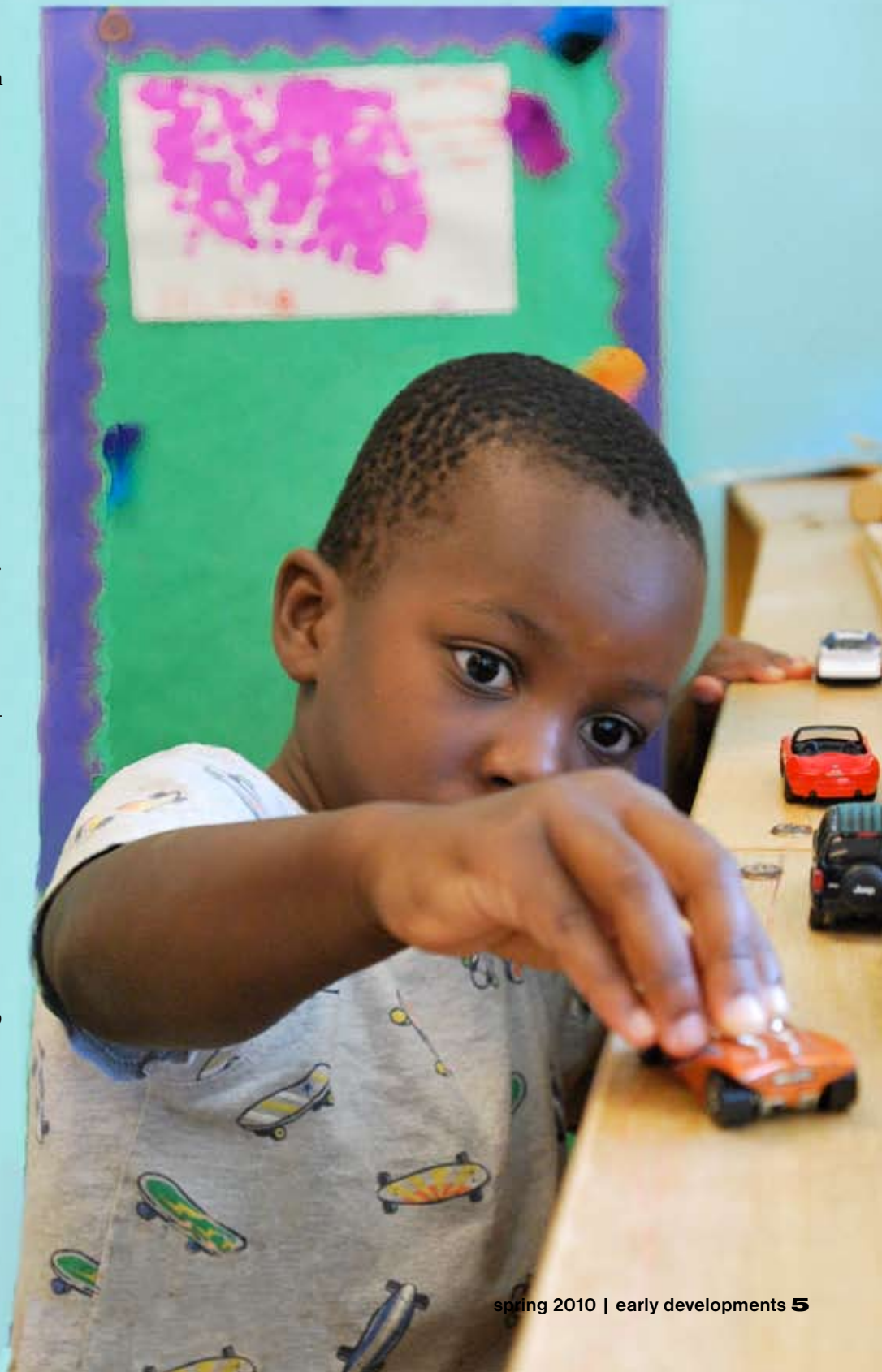
families are enhanced through gaining understanding and supporting practitioners' utilization of knowledge and implementation of recommended practices.

Physical and Social Health. The physical and social health of children and youth are tied closely to the overall development and life outcomes for children. FPG investigators will continue their commitment to address the health needs for individuals of all ages with disabilities. FPG will also respond to the growing needs for knowledge about how best to increase children's physical activity, support appropriate nutrition, and prevent obesity. FPG's interest in health also extends to the mental health of young children through early childhood education curricula and interventions that promote social competence and prevent the development of challenging behaviors.

Race, Ethnicity, Linguistic, Cultural, and Socioeconomic Diversity. Historic discrimination coupled with changing demographics necessitates clear and intentional efforts to support young children who are racially and ethnically diverse in achieving their personal, academic, and economic potential. A primary mission of FPG is to generate knowledge about the social context in which children of color live, establish programs that produce positive outcomes for those children and their families, and to use the knowledge to prepare teachers and caregivers to provide the best possible environment for promoting development and success.

Social Policy and Evaluation. Policy makers need information and support to implement public policies that promote effective service systems, high quality practices, and positive outcomes for young children and families. FPG has a strong history of analyzing and evaluating policies, programs, and initiatives for young children.

This issue of *Early Developments* focuses on some—but not by any means all—of the work FPG is doing within the area of developmental disabilities. Future issues will highlight efforts in other emphasis areas. |ed|



Exploring ASD

Sam Odom, Director
FPG Child Development Institute

THIS ISSUE OF *Early Developments* examines projects involving children with Autism Spectrum Disorders (ASD), their families, and teachers. For more than 30 years, FPG has joined leaders in the early childhood community to conduct research and develop effective interventions for young children with developmental disabilities and their families. In recent years, there as been an intensified focus on children with ASD. From examining the genetic basis of autism to developing ground-breaking professional development resources, this issue explores the science and approaches that could lead to new breakthroughs for children with ASD.

ASD is a complex set of disorders. Originally discovered in the 1940s by Leo Kanner at Johns Hopkins University and labeled "autism," the disorder was defined by two core features: impairments in social interaction and communication, and restrictive, repetitive interests and behaviors. The symptoms of ASD first appear before the age of three. Over the years, the conceptualization of this disorder has changed from a single form, called "classic autism" and now "autistic disorder," to a broad set of disorders on a spectrum, unified by the common characteristics of social/communication limitations and repetitive behavior. The term "ASD" is now in common usage and may well become a formal diagnostic classification in the future.

Recent research underscores the prevalence of ASD among our nation's children and youth. In the not-so-distant past, autism was believed to be somewhat rare, affecting as few as 1 in 10,000 people. But last fall, new data from the U.S. Centers for Disease Control revealed this staggering new statistic: an average of 1 in 110 children have ASD, and be-

cause boys are affected about 4 times as often as girls, the prevalence among boys is 1 in 80. Given the dramatic rise in numbers of children diagnosed, it is inevitable that most teachers, early care professionals and practitioners will at some time work with students who have ASD.

At FPG, our researchers investigate these aspects of ASD: the basic characteristics of ASD and underlying mechanisms; interventions that can have a positive impact on the quality of life for children with ASD and their families; and professional development that promotes the use of effective practices with students having ASD. In this issue of *Early Developments* we describe the range of programs at FPG related to ASD. The FPG motto is "Advancing knowledge. Enhancing lives." In our work to fulfill this mission, we are translating research into practice and bringing those practices into classrooms through the National Professional Development Center on ASD, a collaborative effort between FPG, the Waisman Center at the University of Wisconsin and the M.I.N.D. Institute at the University of California at Davis School of Medicine. The project also works with states to establish professional development and technical assistance programs to improve the quality of services for learners with ASD and their families. For preschool children with ASD, our researchers are examining the effects of two historic comprehensive treatment models of intervention: the TEACCH program that follows a structured teaching approach and the LEAP program that follows a naturalistic, peer-mediated intervention approach. FPG researchers collaborated with investigators at other universities to develop an intervention approach that involves family members in efforts to promote joint attention and early communication development of toddlers with ASD. Our researchers are also examining the underlying genetic bases of autism in work funded by Autism Speaks.

FPGs focus on ASD is part of a larger body of pioneering research and development projects on ASD occurring at The University of North Carolina at Chapel Hill. These include:

- Joe Piven's (FPG Faculty Fellow, UNC Department of Psychiatry; Director, Carolina Institute on Developmental Disabilities) work on neuroimaging and ASD;
- Julie Daniels' (UNC School of Public Health) research on prevalence;
- Linda Watson's (FPG Faculty Fellow and UNC Division of Speech and Hearing) research on interventions to promote joint attention (see page 17) in preschool children with ASD;
- Grace Baranek's and Steve Resnick's (FPG Faculty Fellows and UNC Division of Occupational Sciences and Psychology, respectively) research on early screening and identification of very young children with ASD; and
- Jim Bodfish's (Department of Psychiatry) work on repetitive behavior.

The work of these researchersat FPG and across departments make UNC-Chapel Hill one of the most active centers for research on ASD in the country.

—Sam Odom

Bringing Evidence-based Practices into the Classroom

The National Professional Development Center on Autism Spectrum Disorders

The number of children with Autism Spectrum Disorders (ASD) in preschools, elementary, and high schools increased nine fold between 1995 and 2007, according to the U.S. Department of Education [https://www.ideadata.org/IDEAData.asp]. As the number of children identified with ASD increases, so does our knowledge about effective educational practices for students with ASD. Although there is an emerging base of evidence about effective educational practices for students with ASD, many of these methods have not yet reached school classrooms.

The National Professional Development Center on ASD (NPDC) was created to promote the development and learning of individuals with ASD from birth to 22 years of age by increasing practitioners' use of Evidence-Based Practices (EBPs) in their programs and building states' capacity to implement EBPs. The national center operates through three sites: FPG Child Development Institute at UNC–Chapel Hill, the M.I.N.D. Institute at the University of California at Davis Medical School, and the Waisman Center at the University of Wisconsin at Madison. Now in its third year, NPDC is funded by the U.S. Department of Education's Office of Special Education Programs. "As a term, evidence-based practice has many definitions," says Principal Investigator Sam Odom. "For us, it means ensuring that students receive interventions that have been shown, through research, to work. The challenge has been to develop materials that will help the practitioner choose practices wisely and implement them with fidelity." NPDC investigators' work has focused on two major areas: 1) developing professional development resources related to those interventions, and 2) providing professional development and support to states.

Identifying Evidence-Based Practices

NPDC also identified intervention and instructional practices that had scientific evidence of effectiveness for children and youth with ASD. Investigators reviewed existing literature, searching for practices that promoted communication, social skills, play, academic skills, adaptive behavior skills, or addressed challenging behaviors. Using strict criteria for including studies in the review and assessing the rigor of the methodology, they identified 24 practices that met the project's criteria for EBP. The team created descriptions and implementation checklists for each of the EBPs so that teachers would know how to use them in the classroom. These short reports, along with an overview of the practice and the evidence for each practice's efficacy, are called "briefs." Briefs are available at no cost to the public on the NPDC Web site at http://autismpdc.fpg.unc.edu. In addition to the briefs, the NPDC staff is working with the Ohio Center for Autism and Low Incidence (OCALI) to create instructional, web-based modules for each of these practices. The completed modules are available to the public at the OCALI Web site, www.autisminternetmodules.org. Some modules are still being developed and will be added to the OCALI Web site when they are complete.

Evidence-Based Practices* Identified by NPDC on ASD

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

*a brief description of each of these practices can be found on the NPDC Web site at **www.autismpdc.fpg.unc.edu**

Creating Online Coursework

NPDC developed an introductory online course to provide basic information about ASD to practitioners. The course takes 10–15 hours to complete and covers the following topics: characteristics, early identification, screening, diagnosis, factors affecting learning and development, instructional strategies, foundations of communication, social interventions, promoting positive behavior, and reduction of interfering behavior.

Rating Program Quality

NPDC began its work by developing tools to help practitioners better understand EBPs for individuals with ASD. Before teachers can use EBPs in their programs, there should be a foundation of basic program quality. No assessment instrument of ASD program quality was available, so the NPDC team designed a new assessment tool: the *Autism Program Environment Rating Scale* (APERS). APERS assesses features of programs that reflect quality, such as program structure, social climate, team functioning, communication, and family involvement. There are two versions of APERS: one for preschool and elementary age children, and another one for middle and high school students. Both versions are applicable to inclusive and self-contained programs. NPDC staff and state technical assistance providers begin their work with teachers by completing the APERS

and establishing a plan for promoting the general quality of the program environment.

Professional Development and Support to States

NPDC staff work closely with selected states to promote quality practices in programs serving children with ASD and to build state-level capacity to continue their professional development efforts. Each year, three states are selected through a competitive application process for a two-year partnership with the NPDC. State leadership teams, consisting of leaders in education, early intervention, and ASD advocacy organizations, develop the application. Once states are selected through an external review process, the state leadership team then convenes a larger state group that works with NPDC to develop a strategic plan for the two years. The state leaders also identify individuals who will serve as technical assistance consultants and at least three programs (e.g., preschool class in a school or a middle school program whose personnel will participate in professional development activities). In the spring of the first year, technical assistance providers and local program service providers (e.g., teachers, speech pathologists, etc.) complete the online course. In the summer, NPDC staff and state leaders conduct a one-week intensive workshop at which NPDC products are introduced and state TA consultants become acquainted with the teachers and other staff from programs participating in the training.

At the beginning of the school year, NPDC staff, state TA consultants, teachers, and other professionals collect APERS information, review the APERS results, and create a work plan that promotes and strengthens quality features of the program. Teachers also identify high-priority goals for target students and the EBPs that are likely to produce positive outcomes. State TA consultants arrange a schedule to visit classrooms at least one day a month with follow-up phone calls and e-mails. In addition, NPDC has a "Community of Practice" feature on its web site that allows teachers, consultants, and NPDC staff to discuss specific implementation issues that may arise. Teachers' EBP implementation and students' progress on goals are monitored throughout the year. "States have shown strong interest in the center's work," says NPDC Project Director Ann Cox. "One reason may be that we try to address professional development in a comprehensive way, from the staff in classrooms to planners at the state level."

During the first year, NPDC staff leads the professional development process for state teams. In the second year, the responsibility for the professional development process shifts to the state leadership team. The state team identifies local programs that will participate in the professional development efforts in the second and subsequent years, organizes the online course offerings, organizes the intensive summer training conference, and provides an ongoing system of onsite technical assistance and consultation.

The **National Professional Development Center on ASD** (NPDC) was created in response to the national need to better address the educational requirements of students with ASD. The NPDC staff work with three states per year, with each state remaining in the program for two years. To date, the center has worked with or is beginning to work with Indiana, New Mexico, Wisconsin (the first cohort states); Kentucky, Michigan, and Minnesota (the second cohort states); and California, Texas, and Virginia (the third cohort states). The fourth and final cohort states will be submitting applications in June 2010.

The 2010 NPDC State Application is available online at **http://autismpdc.fpg.unc.edu/content/state-application.**

Evaluation

The NPDC evaluates its work in several ways. Students with ASD receiving intervention are assessed on progress toward their goals using "goal attainment scaling." With goal attainment scaling, the teacher/team identifies the student's current level of functioning for each goal and establishes benchmarks that measure progress in achieving the goal. The scale is developed for each target student's priority goals in the fall, allows teachers to monitor progress toward meeting the goal, and gives researchers the opportunity to measure student outcomes. Progress is monitored throughout the school year, and the scale is reassessed again in the spring.

NPDC investigators also identify changes in program quality by administering the APERS at the beginning and end of the school year. Staff and state technical assistance providers monitor teachers' implementation of EBPs through classroom observation and by completing implementation checklists. Families provide feedback by completing a family satisfaction survey. Investigators also collect state participants' evalua-

Work With High School Students Leads to District-wide Training

Three high school students with ASD have benefitted from ASD program quality improvements and the use of EBPs in their educational environment. NPDC's Waisman Center team, along with the high school team that included teachers, parents, administrators, and therapists, implemented program quality strategies that enhanced communication among team members and increased personal independence and competency for students in the classroom. The team addressed student goals by using the EBPs of peer-mediated instruction and intervention, visual supports (e.g., pictures, written words and objects) and social narratives describing social situations using pictures or other visual aids. By the end of the school year, students had met or surpassed almost all of their goals. Plans for the upcoming year include focusing on the use of other EBPs to increase the engagement of the target students within classroom settings. One of the lessons learned through the work with this high school classroom was the importance of including special education assistants and frequently used substitute teachers in team training.

tions of the entire process.

In its work with the first six states, NPDC investigators found that one measure of the project's success is states' capacity to build, expand, and sustain professional development after the two-year involvement with the project. The NPDC team recognizes that promoting sustainable change requires system commitment and infrastructure. They continue to look for opportunities to not only support positive outcomes for teachers and children but also support districts and states in their efforts to better serve children with ASD. **|ed|**

To Learn More

NPDC
http://autismpdc.fpg.unc.edu

Web-Based Modules
www.autisminternetmodules.org

Working With an Entire School to Change the Educational Climate

The NPDC team from FPG Child Development Institute supported a whole-school initiative at a middle school in Indiana. The team at this school included the principal, related service team members, parents, special education teachers, and a general education teacher who had been working with two students with ASD. While working to implement EBPs that targeted the students' goals, the team became concerned about the lack of awareness and sensitivity toward students with autism among all school personnel, many of whom interacted daily with students with ASD. They developed a course of action that included circulating weekly "Autism Tips" to all school personnel, providing activities to help staff learn more about the strengths and needs of students with ASD, and offering activities for typically developing peers working with students with ASD.

Teachers and administrators have reported that the climate throughout the entire school has changed. Students with ASD and other disabilities believed this middle school became a much more tolerant and welcoming place. Teachers and other practitioners now use supportive strategies to encourage educational success for students with ASD in self-contained and inclusive educational classes. Parents are also excited that their sons and daughters with ASD are developing new friendships.

Two Treatment Approaches for Young Children with Autism

Public schools in the U.S. are required to provide all children, including those with Autism Spectrum Disorders (ASD), with a free and appropriate public education. How "appropriate" these educational services actually are has been widely debated, and there is a need for more research on school-based intervention models for students with ASD. A groundbreaking FPG study, The Comparison of Comprehensive Treatment Models, also known as Project TEACCH/LEAP, seeks to establish the effectiveness of two well-known and widely used comprehensive treatment models (CTMs) for young children with ASD.

Interventions for students with ASD consist of two different but related types of procedures: focused interventions and CTMs. Focused intervention approaches target a specific skill, set of skills or behaviors, and specify procedures for changing the targeted skills or behaviors. The focused intervention literature informs practitioners of practices that may be incorporated into special education classrooms or community programs for children (see examples of focused interventions in *FPG Snapshot #59, Developing Structured Work Systems for Students with ASD,* www.fpg.unc.edu/~snapshots/Snap59_WEB.pdf, and the Evidence-Based Practices identified on page 9).

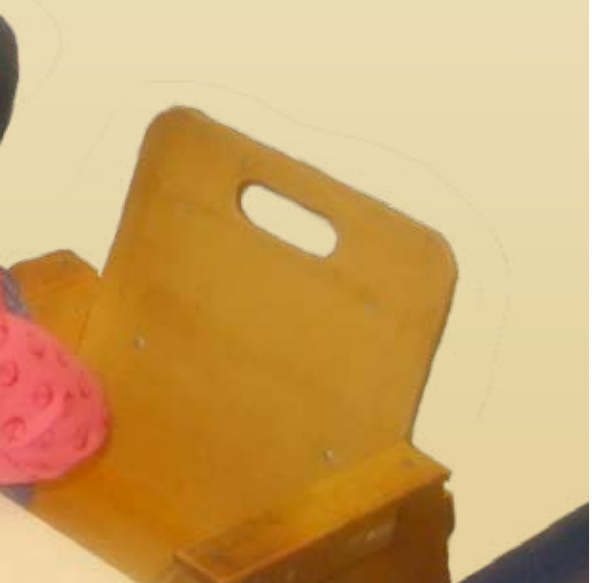


Photo: Division TEACCH

What Are Comprehensive Treatment Models (CMTs)?

Comprehensive intervention programs for young children with ASD differ from focused intervention approaches in their magnitude of service (i.e., they tend to be implemented for longer periods of time), scope (i.e., address a broader array of skills and behaviors), and intensity (i.e., time and staff actions devoted to intervention). Comprehensive intervention approaches may incorporate efficacious, focused intervention practices as components of their model, but they are different in that comprehensive intervention practices are organized within a broad conceptual and/or theoretical framework. The history of comprehensive intervention programs for young children with ASD is as long as that of focused intervention programs.

What Are Focused Interventions?

Focused intervention approaches target a specific skill, set of skills or behaviors, and specify procedures for changing the targeted skills or behaviors. In their review of literature through the year 2000, the National Academy of Sciences identified intervention approaches for children with ASD that promoted communication, social, and adaptive behavior as well as interventions that addressed problem behavior, finding different levels of evidence for each area.* The focused intervention literature informs practitioners of individual practices that may be incorporated into special education classrooms or community programs for children, and these focused intervention approaches often serve as components of comprehensive treatment programs.

*National Research Council. (2001). *Educating Children with Autism.* Committee on Educational Interventions for Children with Autism. Catherine Lord & James P. McGee, eds. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

What is TEACCH?

Treatment and **E**ducation of **A**utistic and related **C**ommunication-handicapped **Ch**ildren

Initially established by Eric Schopler in 1972, TEACCH is the oldest classroom-based comprehensive intervention program for children with autism and their families. The TEACCH intervention includes highly structured modes of teaching that target core and associated features of autism through instructional components like minimizing classroom distractions, increasing direct instruction from teachers, and establishing highly structured and predictable classroom routines and work environments for young children.

Theoretical Foundation

Cognitive social learning theory

Key Programmatic Features

- Self-contained classrooms for children often are used;
- Adult-structured learning opportunities are used;
- Classroom environment is arranged based on characteristics of autism;
- Special education teacher is the primary instructor; and
- Strong parent involvement component.

CTMs differ from focused interventions in their length of service (i.e., they tend to be implemented for longer periods of time), scope (i.e., they address a broader range of skills and behaviors), and intensity (i.e., time and staff devoted to intervention). They may also include effective focused intervention practices as components of their model, but they are organized within a broad conceptual and/or theoretical framework. Because of their scope and size, research questions about the effectiveness of school-based CTMs cannot be addressed through simple studies. Furthermore, experts agree that more research is needed before existing evidence gathered in clinics and home settings can be generalized to school settings.

Project TEACCH/LEAP's goal is to contribute to the improvement of the cognitive, communication, academic, social and behavioral outcomes of preschool-aged children with ASD by studying the immediate and long-term effects of two CTMs: the **T**reatment and **E**ducation of **A**utistic and **C**ommunication-handicapped **Ch**ildren (TEACCH) and **L**earning **E**xperiences: **A**lternative **P**rogram for Preschoolers and Parents (LEAP) models. Researchers will compare TEACCH and LEAP with each other and typical classroom service models (i.e., early special education classrooms in public schools that are considered more "eclectic" and may use a variety of approaches). Both TEACCH and LEAP have been used for more than 25 years and are currently being implemented in multiple U.S. states and several foreign countries. They also feature curriculum and procedural guides, fidelity of treatment measurement systems, and formal procedures for training teachers and program implementers. The efficacy of TEACCH and LEAP has not been established yet

What is LEAP?

Learning **E**xperiences: **A**lternative **P**rograms for Preschoolers and Parents

The LEAP comprehensive early intervention model was established by Phillip Strain in 1981 through the Handicapped Children's Early Education Network. LEAP uses naturalistic teaching approaches that provide treatment in contexts similar to typical early childhood classrooms and uses instructional approaches such as embedding individualized instruction into natural activities and routines, and involving typically developing peers in instruction to provide a range of developmental activities.

Theoretical Foundation

Blend of Applied Behavior Analysis (ABA) and theories of child development

Key Programmatic Features

- Typically developing children are full-time class members;
- Naturalistic teaching strategies are used;
- Classroom environment mirrors typical early childhood setting;
- Co-teaching model of instruction; and
- Strong parent training component between special education and general education teacher.

through controlled systematic implementation and child outcome research. "Among autism studies, this is the first to look at the efficacy of existing CTMs," says Brian Boyd, the project's Co-Principal Investigator. "It's also one of the largest studies ever conducted on behavioral interventions in general." Project TEACCH/LEAP is underway in four U.S. states (Colorado, Florida, Minnesota and North Carolina) and will involve 75 classrooms and up to 225 young children with ASD.

An important element of the FPG study is to ensure that all of the participating classrooms are high quality, regardless of the treatment model employed. All participating teachers must be certified to teach in the public school setting and have at least two years of experience working with students with ASD. The teachers in the TEACCH and LEAP models must have taught using the model for at least two years, attended formal training in the model, and must attend one additional training session provided by the research staff. The research staff adapted an existing tool, the *Professional Development in Autism Assessment* (PDA), to measure classroom quality for learners with ASD. The measure assesses and rates teacher-child interaction, classroom curriculum, physical environment, instructional techniques, and adaptations used to best meet the needs of students with ASD. It also allows the researchers to accurately capture practices occurring in the classroom and to screen classrooms for quality before participating in the study. Classrooms are required to receive above-average ratings to be considered for enrollment. There are also criteria in place for children participating in the study: the children must be between three and five years of age

when they enroll and must meet the diagnostic criteria for ASD.

The FPG researchers believe that the TEACCH and LEAP treatment models will have both positive and different effects when compared to each other and the typical classroom service model. For instance, TEACCH's use of visual cues, structured environments and organizational systems to help young children organize their work and play materials may enhance the learning of adaptive ("self-help") skills, nonverbal cognitive concepts, executive function, and receptive language abilities. LEAP's naturalistic intervention model, which is embedded in children's daily routines within an inclusive classroom setting, may produce greater gains in skills including joint attention (see page 15), expressive language, and positive social engagement with both peers and adults.

Using the new data, FPG Investigators intend to answer important questions:

What are the effects of TEACCH/LEAP and business-as-usual classroom models on the developmental performance of young children with ASD?

How do different child characteristics impact the response to treatment across different classroom types?

Are there other factors that may increase or decrease the treatment effects for young children with ASD?

Using the new data, FPG investigators intend to answer important questions. What are the effects of TEACCH/LEAP and business-as-usual classroom models on the developmental performance of young children with ASD? How do different child characteristics (e.g., age, ability level, diagnosis) impact the response to treatment across different classroom types? Are there other factors (e.g., teacher experience) that may increase or decrease the treatment effects for young children with ASD? The researchers hope that once these key questions are answered and the results are shared with families, practitioners and other researchers, their ultimate goal will be realized: contributing to the improvement of the cognitive, communication, academic, social and behavioral outcomes of young children with ASD. |ed|

For more information

Project TEACCH/LEAP
www.fpg.unc.edu/~asdtc/

TEACCH
www.teacch.com/

Promoting Joint Attention of Toddlers with Autism Spectrum Disorders

Some experts identify the absence of joint attention in late infancy and early toddlerhood to be a "red flag" for autism spectrum disorders.

One of the most delightful times for parents is when infants and toddlers want to share with others the things they find interesting. For example, Lucy, an eight-month old, squeezes her teddy bear—and is happily surprised when it squeaks. She excitedly looks at her mother to see if she heard the sound. Lucy's mother smiles, looks at her daughter and the bear and says, "You made it squeak! Can you do it again?" This type of exchange is called "joint attention." Joint attention typically emerges when children are around 12 months old, and it is strongly tied to children's language development. It involves establishing a common interest and sharing of information, and it may be a predictor of future language development. For young children with Autism Spectrum Disorders (ASD), however, joint attention is significantly delayed, and some experts identify the absence of joint attention in late infancy and early toddlerhood to be a "red flag" for ASD.

Acquiring joint attention skills can give toddlers with ASD an important advantage for later success, and better results are expected with earlier intervention. A team of researchers from Indiana University, University of Kansas, and FPG Child Development Institute designed and are investigating a new early intervention approach, Joint Attention Mediated Learning (JAML), designed to promote the development of joint attention between toddlers with ASD and family members (usually parents). Based on the developmental literature, the JAML researchers identified early social and communication skills that may be important for the initiation of joint attention by infants and toddlers with ASD and their families. These skills are the goals of intervention activities with parents and their infants. The skills, introduced to families in the following order, are:

Focusing on faces: The child looks at the parent's face during play activities.

Taking turns: The child and the parent alter their participation in a way that allows both to be involved in a "give and take" pattern.

Responding to joint attention: The parent encourages the child to look at an activity or toy, and then the parent makes an attempt to draw the child's attention to the parent's face. (The mother draws her daughter's attention to the mother's face, then shows Lucy the teddy bear and demonstrates how to activate its squeaking sound. The mother squeezes the bear. Lucy hears it squeak, becomes excited, and looks back at her mother to share her excitement).

Initiating joint attention: The child makes an attempt to share his/her interest in a toy or activity with the caregiver. (Lucy looks at her teddy bear, makes the bear squeak, and looks up at her mother's face to see if she heard it too. After checking her mother's face, Lucy returns her attention to the teddy bear).

"Communicating socially is the area of greatest challenge for toddlers with ASD and this may put a strain on parent-toddler interaction," says Indiana University researcher Hannah Schertz. "Our intervention is designed to help toddlers become competent with sharing attention socially through natural everyday parent-child interaction."

The JAML approach is grounded in and a set of mediated learning principles related to adult-child interaction:

Focusing the parent and the child on the current phase of the intervention;

"As parents' knowledge grows and they see the impact of their efforts on their toddlers' development, they gain confidence in their ability to make a difference over time."

Giving meaning to the parent's learning of ways to support their child's joint attention and to the child's experience of the interaction;

Expanding parents' understanding of the intervention and the child's level of competency with the targeted outcome (e.g., turn-taking);

Encouraging parents' recognition of their effects on their children and the child's confidence in engaging with the parent; and

Organizing and planning parents' time with their child and promoting the child's sense of order and reciprocity in social communication exchanges.

The JAML intervention was designed to take place in the home. Developmental specialists working with the project usually make weekly visits that last an hour or two. At the beginning of the intervention period, the specialist explains the goal of the intervention, which is to develop the set of competencies that will lead the child to initiate joint attention. The specialist works with the parent(s) to identify settings in which specific skills might be enhanced. The emphasis is twofold: 1) planning daily, 30-minute play times in which the parent supports the child's use of the current targeted outcome, and 2) embedding opportunities for the child to practice the skill during other routines and activities during the day. The developmental specialist follows the learning principles and reinforces parents' own ideas for encouraging their child's use of targeted skills. During the weekly home visits, the specialist usually starts with a recap of the previous week. They then videotape a play session between the parent and child and discuss the session with the parent, sometimes playing back the video to provide examples. Finally, the parent and specialist discuss how the parent can encourage the child's use of the targeted skills in the next week. "We've found that as parents' knowledge grows and they see the impact of their efforts on their toddlers' development, they gain confidence in their ability to make a difference over time," said FPG project coordinator Martha Lee. "Because of parents' constancy in their children's lives, we expect the intervention to result in positive effects for both toddlers and families that persists over time." **|ed|**

To Learn More

Promoting Early Social-communicative Competency in Toddlers with Autism
http://www.fpg.unc.edu/projects/project_detail.cfm?projectid=461

Promoting Joint Attention in Toddlers with Autism: A Parent-mediated Approach. By H. H. Schertz & S. L. Odom in the 2007 *Journal of Autism and Developmental Disorders, 37,* pages 1562-1575.

Family Ties

Exploring the Genetic Basis of Autism and Related Developmental Disabilities

For more than 60 years, the root causes of Autism Spectrum Disorder (ASD) have been studied and debated vigorously. Although the exact causes of autism remain a puzzle for researchers, there is growing evidence that it may be linked to genetic factors. In a series of new studies, FPG faculty fellow Molly Losh is working to identify cognitive characteristics that could run in families and provide more direct clues about genes linked to ASD.

In work funded by Autism Speaks, the National Institutes of Health (NIH), and the National Science Foundation, Losh is currently studying the language and cognitive development of individuals with ASD and their family members. Earlier studies suggest that particular language development skills may cluster in families of individuals with ASD and could be linked to the brain and genetic origin of ASD. In this work Losh is examining language and related behaviors among individuals with autism and their family members in order to identify associations between these cognitive-behavioral characteristics and genetic variation.

Losh so far has identified a distinct profile among relatives of individuals with autism, in which their math skills exceed their verbal skills. While most relatives showed no signs of impairment in any skills, this pattern of strengths and weaknesses is similar to those often observed in people with ASD. Losh is also studying the brain-based characteristics of these profiles and communicative ability in persons with autism. So far, results suggest slight differences in tasks that tap functioning in areas of the brain involved in processing social information and other cognitive tasks.

> Although its exact causes remain a puzzle for researchers, there is growing evidence that autism may be linked to genetic factors.

In related work funded by NIH and the March of Dimes, Losh is studying the clinical, behavioral, and neuropsychological overlap of autism and fragile X syndrome. Fragile X syndrome is the most common inherited cause of intellectual disability, and the most common known genetic cause of autism. To understand how the fragile X gene (FMR1) may play a role in the features of autism, Losh is examining patterns of strengths and weaknesses across behavioral and neurocognitive domains. These patterns may show overlap between these neurodevelopmental disabilities and implicate the fragile X gene in particular features of autism. This work also involves family members who are at increased genetic risk for autism and fragile X. These studies incorporate detailed language and cognitive assessment tests and genetic analysis to identify precise links between behavior, brain, and gene. "The family study approach offers a powerful means of identifying genetically meaningful characteristics that may help us identify the brain and gene basis of autism," said Losh.

Previous research suggests that children with autism and children with fragile X syndrome are similar in their language and social understanding of tasks that involve interpreting what other individuals may be thinking or feeling. These profiles were already well documented in autism, but the new research indicates similar profiles in fragile X syndrome and could implicate a particular gene associated with language and social cognitive abilities. Such findings also add important information to the understanding of the range of behavioral and cognitive profiles in individuals with fragile X syndrome, which may help to refine diagnostic and intervention practices.

Losh's research has also found that relatives of individuals with autism and relatives of individuals with fragile X who are genetic carriers of FMR1 may share a number of very subtle cognitive characteristics. This research gives further insight into the role of the fragile X gene in complex traits and abilities that could be associated with autism. The next step in this research is to look at specific genetic and environmental characteristics that could influence these profiles in children and among relatives. Together, this work may help to identify genetic and neurobiological underpinnings of autism and related conditions such as fragile X syndrome, which could ultimately inform diagnostic practices. |ed|

To Learn More

Carolina Neurodevelopmental Disabilities Project (CNDP)

http://projects.fpg.unc.edu/cndp/projects.cfm

Renowned National Education Leaders Join 2010 Inclusion Institute

Two of the nation's most celebrated education scholars and leaders, Barbara Bowman and Ann Turnbull, headlined the 10TH Annual National Early Childhood Inclusion Institute. The Institute, which took place on May 17-19, 2010, at UNC-Chapel Hill, brought together approximately 400 people from the many sectors that serve young children. Participants spent three days learning and problem solving about inclusion issues. Bowman and Turnbull shared their experiences and insights in a compelling panel discussion that included Mary Mazarky, Assistant Commissioner for Pre-K at the Georgia Department of Early Care and Learning, and Samtra Devard, founder of the Hope Center Network for Families.

Presentations from this year's conference are posted on the Inclusion Institute Web site at http://www.nectac.org/~meetings/inclusionmtg2010/mtghomepage.asp. The 2011 Inclusion Institute will take place on May 16–18, 2011. More information about the event will be forthcoming later in the year.

FPG Awarded $4 Million Grant, Partners with NC for FirstSchool Initiative

FPG Child Development Institute has been awarded a $4 million grant from the W. K. Kellogg Foundation to support FirstSchool, an integrated approach to caring for and educating children ages 3-8. FirstSchool works with schools, communities, states and higher education institutions to unite best practices for early childhood, elementary and special education. Drs. Sharon Ritchie and Dick Clifford are the program's co-directors.

This new grant follows four years of planning and pilot programs in several NC school districts. The FirstSchool grant will enable a team to work in four North Carolina schools and four Michigan schools. In addition to intensive consultation at local sites, FirstSchool leaders will collaborate with other state initiatives and offer technical assistance workshops.

FPG also entered into a partnership with the North Carolina Department of Public Instruction to use the FirstSchool framework to guide the department's reorganization. The arrangement is part of the department's new focus on early elementary classrooms and its plan to build a new unit that brings together the Office of School Readiness and early elementary specialists, linking relevant content specialists.

For more information: www.fpg.unc.edu/~firstschool

FPG Launches Infant-Toddler Initiative

FPG Child Development Institute launched its new infant-toddler initiative in May with a series of working meetings with national experts in child health and development. At the meetings, researchers and scientists presented and discussed recent findings about young children's cognitive, language, and socio-emotional development, as well as physical health. The goal is to lay the groundwork for the next generation of infant toddler care and intervention for children raised in poverty and their families. The team leaders of the FPG infant-toddler initiative are Elizabeth Pungello, Nicole Gardner-Neblett, and Sam Odom.

more news

FPG and the Society for Research in Child Development Team Up for New Social Policy Reports

Researchers at the FPG have assumed editorial responsibility for the ***Social Policy Report*** for the Society for Research in Child Development. The report translates child development research into policy implications and is disseminated to over 10,000 readers. The first issue published under FPG's editorship was *Protecting Children from Exposure to Lead: Old Problem, New Data, and New Policy Needs* authored by Claire Cole and Adam Winsler. This report addresses the high levels of lead with which children come into contact and what policymakers can do to reduce the threat of exposure. The second ***Social Policy Report,*** *Autism Spectrum Disorders: Diagnosis, Prevalence, and Services for Children and Families,* authored by Catherine Lord and Somer Bishop, was published in May. The full reports can be viewed at http://www.srcd.org/index.php?option=com_content&task=view&id=232&Itemid=550

Sharon Ritchie Elected to NAEYC Governing Board

Sharon Ritchie, Ed.D. and Senior Scientist at FPG, was one of five early childhood experts from around the country elected to the National Association for the Education of Young Children (NAEYC) Governing Board. Founded in 1926, NAEYC has nearly 90,000 members worldwide and is the largest professional organization for early care and education in the United States.

For more information, visit: http://www.naeyc.org

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