Autism: The Mind-Brain Connection

Richard Solomon M.D.
Medical Director
Ann Arbor Center for Developmental and Behavioral Pediatrics
www.aacenter.org
www.playproject.org

Autism: Brain-Mind Connections Overview
• Historical overview: Autism as mental illness, disability and/or treatable biological condition?
• Is autism increasing or is it becoming increasingly recognized?
• How do you define/diagnose autism?
• What is the brain-mind connection in autism?
• How do children with autism view the world?
• What are the best interventions to help children with autism gain functional development?

Autism: Historical Overview I
• “Insanity of Early Life” - Maudsley (1867)
• Infantile psychosis caused by heredity, sudden changes of temperature, fright or masturbation - Spitzka (1883)
• Children’s service, New York State Psychiatric Institute, Criteria of Schizophrenia in Childhood (1893)

Autism: Historical Overview II
• 1930’s - 1950’s: Systematic investigation.
• Leo Kanner - “Early Infantile Autism” 11 cases (1943)
• “Refrigerator Parent” of psychoanalysis
• Asperger in Austria - high functioning children with autistic features

Autism: Historical Overview III
• 1960’s - 70’s: Special Elementary School
• 1980’s: Inclusion and pre-schools
• 1990’s: Early Intervention
• Now: Intensive one-on-one EI, then inclusion
• Parent choice, cost and science
How Common is Autism?

- Prior to 1990s: 4-5 per 10,000 for autism
- Brick NJ: 4 per 1,000-AD; 6.7 per 1,000-ASD
- 2007 CDC data: 1:150
- 2009 CDC data: 1:100
- Four times more common in boys (1:88)
- Why the extraordinary increase?


*Source: U.S. Department of Education, Office of Special Education Programs, Data Analysis System (DANS)*

What Causes Autism?

- Finding it earlier and milder.
- Evidence for genetic contributions
- That effect brain development
- Causing key deficits in language, socialization and restrictive behaviors
- But there must be (still unknown) factors
Autism: Brain-Mind Connection

- Fragile X - 10-15%, Tuberous sclerosis, Neurofibromatosis
- 60% concordance in identical twins
- 25% of relatives with language delays
- EEG abnormalities and epilepsy in 25-30%
- Neuro-imaging studies indicate consistent findings.
- At young age neuronal plasticity important.

Autism Etiology: Genetics

- Autism Genetic Resource Exchange (AGRE)
- 10-20 interacting genes, contributing risk
- Family studies: 2q, 4, 11, 13, 17p among others
- Positional and functional ‘candidate’ genes
- Genes that code for enzymes, receptors, neurotransmitter transport, brain development, etc
- Glutamate receptors & Neurexin
- Endophenotype analysis:
  - Traits in family members

Autism Etiology: Genetics

- Using the genetic linkage analysis, the authors found that the 11p12- p13 region of chromosome 11 was most closely linked to neurexins, transmembrane proteins expressed on the postsynaptic cell that bind to presynaptic transmembrane proteins called β-neurexins.
- Neurexin 1 encodes for a protein that facilitates interneuronal communication. Deficits or defects in glutamate function have been implicated previously in autism and other neurodevelopmental disorders.

Autism Etiology: Brain Imaging

- Abnormal regulation of brain growth
- Early overgrowth, followed by abnormally slow growth.
  - Ex: Enlargement of brain ages 2-4 in cerebral and cerebellar white matter and cerebral cortical gray matter. Not in older subjects.
- White matter: abnl information processing
- Corpus collosom: left brain-right brain interconnections less developed in autism.
- Abnl growth factors affect neuronal and glial devel.
- Cerebellum: decrease in Purkinje, association cells
- Limbic system: small compacted neurons
Autism Etiology: Brain Imaging

• fMRI dysfunction: movement, face perception, processing of emotion and visual attention
• Visual system (right hemisphere) more dominant in autism which is why people with autism ‘think in pictures’.
• Recent neuropsychological tests (Minshew, et all) found multiple areas of deficits in brain areas.
  – Trouble with complex tasks (sequences).
  – Trouble with complex figures of speech: ‘Hop to it’. They hop.
• Theory of Mind: Abnl symmetry frontal & temporal
• Mirror neurons: Fundamental basis for mimicry and imitation disrupted in autism.

Autism Etiology: Immune System

• IOM 2004: 24 Well done studies: No relationship of ASD with Immunizations
  – Wakefield fudged his data. Columbia study disproves Wakefield study
• Thimerosal: Danish studies negative
• Prenatal mercury exposure from seafood: Negative
• Autoimmune mechanisms/inflammation: non-specific
• IVIG trials: Negative

Autism Etiology: Environment

• California study (2009). Hertz-Picciotto Epidemiology 20(1)84-90. Rise in ASD not explained by early dx or milder ASD. Prenatal environment implicated
• Environmental Working Group: Umbilical cord blood from 10 randomly selected newborns in U.S.
  – 287 Chemicals detected
  – 217 are toxic to the brain and nervous system
  – 208 cause birth defects.
• Other ‘Environmental’ Risk Factors
  – Extreme prematurity
  – IVF
  – Older fathers

Autism Etiology: Environment

Many behavioral therapies to treat autism stress rote learning, Dr. Minshew explained. Such strategies are helpful, particularly early in a child’s development. However, if the theory of underconnectivity proves valid, therapies that stimulate brain areas to work in synchrony might also offer some benefit. Such therapies might stress problem solving skills and creative thinking, and attempt to foster flexibility in thinking.

Autism Etiology: Environment?

• Baron Cohen: Extreme male brain theory of autism
• New study: Fetal testosterone levels correlated to autistic traits in the children.
• Source of increase in testosterone may be genetic or environmental.
• Long fourth digit also an effect of increased testosterone.

Although yet to be identified environmental factors likely contribute to the development of autism, heritability studies suggest that the impact of those factors must be imposed upon individuals genetically predisposed to the disorder.”
Autism & Parents’ Concerns
(Howlin & Moore, 1997)
• Average age of diagnosis: 6 years (3 years)
• Parental concern from 18 months
• Sought medical attention: 2 years
• 90% referred to another professional *– 40% given a dx; 25% referred to other professionals – 30% reported “no help given”; 10% reported professional explained problem
*25% told “not to worry”

DSM IV -Diagnostic Criteria for Autistic Disorder
1. Qualitative impairment in social interaction
2. Qualitative impairment in communication
3. Restricted repetitive and stereotyped patterns of behavior, interests and activities
4. Delays or abnormal functioning prior to age 3 years in
   (a) social interaction
   (b) language
   (c) symbolic or imaginative play
5. Not Rett’s or Childhood Disintegrative Disorder

The Pervasive Developmental Disorder (PDD) Spectrum
• Autistic Disorder
• PDD Not Otherwise Specified
• Aspergers
• Eccentric
• Normal

Autism Prognosis
“...therapeutic intervention... has little beneficial effect for autistic children, except to prevent further deterioration.”

Autism Screening
• Physicians: Developmental surveillance
• Consider using ASD screening and diagnostic tools (e.g. M-chat, Rapid ABC–15 months-3 yrs)
• Autism Diagnostic Observations Scale (ADOS) and Autism Diagnostic Inventory-Revised (ADI-R)
• www.firstsigns.org
• Refer any child with language delay or questions about hearing for audiologic and speech and language assessment
• Listen to parents concerns!!
• Early Intervention 1-800-Early On

Autism: Medical Work-up
• Complete Family History
• Search for Genetic Syndromes
• Neurological Exam
• Audiologic Evaluation
• Chromosomes (Fragile X, FSH studies, subtelomeric)
• If seizures suspected: EEG and neurology referral
• Metabolic panel and Amino acid studies
Intervention Options

National Academy of Sciences 2001 Recommendations

- Early intervention: 1.5-5 years of age
- 25 hours/week of direct intervention
- That is engaging
- Individualized (1:1 or 1:2)
- And has a strategic direction
- Goal: Personal independence and social responsibility

Intervention Options

University of Michigan Your Child Web Site
www.med.umich.edu/1Libr/yourchild

Autism Speaks
www.autismspeaks.org

Autistic Child’s World View
Comfort Zone Chart

“Comfort Zone”
Perseverations/Stereotypes

- Repetitive, restrictive behaviors. Child seems like they don’t want to be part of our world.
- P/S are not ‘bad’. They are a form of comfort the child uses to stay in their comfort zone.
- Help child regulate a chaotic world.
- May become habits & keep the child isolated.
- ‘Joining’ P/S helps engagement.
- As the child’s world view enlarges P/S will diminish naturally.

As Engagement Increases
Perseveration Decreases Naturally

Early Intervention Options

- Special Education
  - Birth to three (Early Intervention)
  - Three to Five (Special Education Pre-school)
  - LEAP—Peer Interventions. Phil Strain
- Speech and Language Therapy/Hanen
- Biomedical/Alternative
- Occupational Therapy/Sensory Integration
- Medications
- Intensive Behavioral and/or Developmental
Biomedical Interventions

- Hyperbaric Oxygen
- Yeast Free Diet
- Gluten/Casein Free Diet
- Vision therapy (prism glasses)
- Chelation
- Vitamin Therapy/B12
- Secretin
- Magnetic Therapy

Autism & OT/SI

- Faulty sensory integration:
  - Registration of information
  - Modulating sensory input
  - Integration of information from the senses
  - Creating meaning from sensory input
- Clinically effective
- Scientifically: No evidence

Autism and Medications

- ADHD and stimulants in ASD? Yes.
- Prozac/SSRIs for anxiety/OCD
- Risperdal for aggression/behavior probs.
- Alzheimer’s meds: Chez improve language and attention.
- Seizure meds for subclinical seizures.

Intervention Options

- Intensive Interventions
  - ABA/Intensive Behavioral
  - Intensive Developmental
  - Other

Intervention Options: Other

- RDI—Relationship Development Intervention (Gutstein)
- SCERTS Model (Prizant and Weatherby)

Applied Behavior Analysis (ABA)
(UCLA/LOVAAS Model)

- One-on-one intensive and behavioral
- Based on ‘Skinnerian’ conditioning
- Program oriented, teacher driven
- Drill for skills with rewards
- 40 hours per week. No school in beginning
- Proven outcomes in randomized trials
Applied Behavior Analysis (ABA)
(UCLA/LOVAAS/Discrete Trial/ Model)
- 1987 and 1993: Published studies*
- Randomized controlled trials (n = 20 in each group)
- 47% enrolled in regular school and retained gains overtime
- Recent replication not confirmatory studies (2000, Smith)
- Review by Shea (Autism, 2004):
  - Recent research much less impressive in terms of outcomes
  - Results overestimated ‘recovery’
  - Variety of interventions needed
- Speckley & Boyd—Meta-analysis in J Peds critical of ABI

Early Intensive Behavioral Interventions (EIBI)
- Lovaas: Discrete trial intervention
- RCT: Eikeseth (2002, 2007); Sallows; Smith
- Sundberg & Carbone: Verbal Behavioral (VB)
- Koegel: Pivotal Response Therapy
- A handful of well done studies (Speckley & Boyd)

Intensive Developmental (Greenspan & Weider)
- Developmental, Individual differences and Relationship-based (‘Floortime’)
- One-on-one intensive engagement
- Child centered - meet ‘em where they’re at
- DIR is the theory, Floortime the practice
- 15-25 hour/week beside school
- 6 Functional developmental levels
- Emphasis on “affect” at the core of ego integration.

DIR Model (cont)
6 Functional Developmental Levels
1. Shared Attention & Self regulation (FDL 1)
2. Engagement (FDL 2)
3. Two way Communication (FDL 3)
4. Complex two-way Communication (FDL 4)
5. Shared Meanings & Symbolic Play (FDL 5)
6. Emotional Thinking (FDL 6)

Intensive Developmental (Play-based) Interventions
- Mahoney and Perales. JDBP, 2005
- Aldred, Green, Adams (2004)
- Solomon et al. Autism, 2007
- Greenspan. JDLD, 2001

Developmental Outcomes
- Joyful relating
- Simple and complex nonverbal gestures
- Long interactive sequences (e.g. 50+)
- "Circles" of spontaneous verbal communication"
- Shared social attention
- Symbolic language related to affect
- Intact ego functions
- Non-autistic on CARS, FEAS and Vineland
Developmental Course of Autism

Typical Development
Autism: Intensive Intervention
Cognitive Impairment
Autism: Natural Course
**Background: Prevalence**

- Prior to 1990s: 4-5 per 10,000 for autism
- Current estimates: 2-6 per 1,000 children for autism spectrum
- Brick NJ: 4 per 1,000-AD; 6.7 per 1,000-ASD
- 2003 California study: Doubling in last 4 years
- 1 in 150. CDC 2007.
- Four times more common in boys. 1 in 88

**Background: Intervention**

- National Research Council (2001)
- Begin early: 18 month-5 years
- 25 hours/week
- 1:1 or 1:2
- Engaging
- Strategic Direction
- Comprehensive programs address ASD

**Background: Early Diagnosis**

- Diagnosis as early as 14 months (Landa)
- Level 1: M-Chat Screening
- Level 2: ADOS + ADI-R for clear cut cases
- Level 3: Full clinical evaluation by team or experienced clinician
### Background: Interventions

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<th>Core Deficits</th>
<th>EIBI</th>
<th>PLAY</th>
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<tr>
<td>Language Delays</td>
<td>Teach skills in small steps &amp; reinforce</td>
<td>Affect connects language to events.</td>
</tr>
<tr>
<td>Social Deficits</td>
<td>Adult directed reward and shape social overtures</td>
<td>Child led contingent reciprocal intrx</td>
</tr>
<tr>
<td>Repetitive Behaviors</td>
<td>ABCs of ABA to reduce prob. beh.</td>
<td>Use behavior to understand child</td>
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### Background: The Need

- **Pennsylvania Experience**
  - Cost for professional intervention: $40-60,000 per child per year
  - Effective, efficient interventions needed
  - Community-based, family centered approaches are efficient.
  - Few well done studies on parent training approaches

### PLAY Project: Vision

“The vision of the PLAY Project is to be a community based/regional autism training and early intervention center dedicated to empowering parents and professionals to implement intensive, developmental interventions for young children with autism in the most effective and efficient way.”

### The PLAY Project: Mission

- Educate community re: National Research Council recommendations
- Use community based approaches to promulgate developmental, individual differences and relationship based interventions (DIR)
- Support families in a parent-professional partnership
- Evaluate effectiveness of program
**PLAY Workshop**

**D.I.R.® Model/Floortime (Greenspan)**

- Developmental, Individual differences and Relationship-based
- One-on-one intensive engagement
- Child centered - meet’em where they’re at
- DIR is the theory, ‘Floortime’ the practice
- 15-25 hour/week beside school
- 6 Functional developmental levels

**PLAY Workshop**

**Greenspan/DIR Model**

**6 Functional Developmental Levels**

- Self regulation and shared attention (FDL 1)
- Engagement (FDL 2)
- Two-way Communication (FDL 3)
- Complex two-way Communication (FDL 4)
- Shared Meanings & Symbolic Play (FDL 5)
- Emotional Thinking (FDL 6)

**PLAY Project**

**Community Development I**

- Collaboration/Coalition Building
  - MAAP
  - Referring physicians (Neurology, Psychiatry, DBP)
  - School Districts/State Dept of Education
  - Autism Societies
  - Child Welfare Programs
  - Community Mental Health Children’s Services
  - Parent support groups
  - Early On Systems Coordinator

**PLAY Project**

**P.L.A.Y. Project & Programs (2010)**

(Play and Language for Autistic Youngsters)

**PLAY Project**

**Regional Training Center**

- Office Consultation
- Home Consultation
- Training Program
- MAP Parent Support
- Prog. Eval & Research

- Office Visit at AACDBP
- Diagnostic
- Referrals to SLP, OT & Home Consult.
- MAP Parent Support
- Parent/Prof Partnership
- Advocacy and Resources
- Prog Eval of Home Consult Program and Comm. Train.
- NIMH BCT funded/unfunded

**P.L.A.Y. Project & Programs**

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**PLAY Project**

**Ann Arbor Center Home Consultants**

- Masters Level (OT, SLP, M.Ed, MSW, etc.)
- 25 Families/consultant/yr = 1 FTE
- Average 20 feedback sessions per year
  - 10 Home Visits (roughly monthly)
  - 10 Video Reviews
- 260 visits per consultant year
- 6 half day (3 hour) sessions per week
- 1 hour service radius
- Home Consultant Training
  - Intensive initial training & ongoing supervision
  - Weekly supervision
  - ICDL Training Summer Institute
The PLAY Project
Home Consultant: Visit Design
- Monthly half day/3 hour visits
- Review of PLAY Project Manual/Training
- Model PLAY Techniques by Consultants
- Observe and Coach PLAY Partners (Parents)
- Video Feedback at the visit
- Visit Report Form (Curriculum) after the visit
- Reflective Supervision
- Use ‘PLAY Skill Sequence’
- Fidelity Measure

PLAY Skill Sequence: Summary
1. List Principles & Strategies Based on Comfort Zone (CZ)
   Sensory Profile (SP) and Functional Developmental Level (FDL)
2. Assess Child’s unique: CZ, Activities, SP & FDL
3. Define Daily & Weekly Curriculum/Activities
4. Follow Child’s cues, lead & intent to increase Circles
5. Create Menu of Specific Techniques
6. Video Tape/Critically Review Interactions and Progress
7. Refine Curriculum, Methods & Techniques

PLAY Clinical Outcomes
- Joyful relating
- Simple and complex nonverbal gestures
- Long interactive sequences (e.g. 50+)
  “Circles” of spontaneous verbal communication”
- Shared social attention
- Symbolic language related to affect
- Intact ego functions

PLAY Project
Home Consultant: Intake
- Assessments
  - Family Intake Form
  - Childhood Autism Rating Scale (CARS)
  - Greenspan Social-Emotional Growth Chart
  - Functional Emotional Assessment Scale (FEAS)
  - REEL-3 (Language)
  - Satisfaction Surveys (3 months/1 year)
  - FDL Progress Charts

Case Study: Roshun

Functional Developmental Level Progress Chart:
Child’s Name: Roshun After
Home Consultant: Template, OTR/L
P.L.A.Y. Project & Programs
(Play and Language for Autistic Youngsters)

PLAY Project
Regional Training Center

Office Consultation  Home Consultation  Training Center  MAP Parent Support  Prog. Eval & Research

Office Visit at AICEDD
• Diagnosis
• Referrals to SPLS & Home Consult

• Monthly half day trainings
• Train parents in DIR model
• Video feedback training (FEAS)
• Community based trainings
• Introductory & intermediate
• Training Center

• Parent Support
• Parent/Prof Partnership
• Advocacy and Resources

• Prog. Eval of Home Consult Program and Comm. Train.

P.L.A.Y. Project & Programs
(Play and Language for Autistic Youngsters)

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Community Trainings

• PLAY Project Workshops
  - Workshop I: Introduction to PLAY/DIR
  - Workshop II: HFA & Social Skills
  - In-depth Case Studies/Watch & Learn
  - Teaching PLAY in Schools

• DVD Digital Video Workshop
  - Skill Sequence
  - Dozens of Examples of Parents Playing

• Annual Conference in Michigan

Teaching PLAY in the Schools

• Parents training plus training of pre/school staff guarantees ‘intensity’ (15 hrs/week, 1:1)
• Cost effective, naturalistic, integrated into classroom
• PPHC trains selected teachers, staff and/or paraprofessionals as PLAY Partners
• Continuity between home and school=generalization
• DIR Framework informs all interactions
• IEP Goals: Attention, engagement, initiation:
• “1000 circles a day” & much less prompting.

Agencies Trained

• PLAY Projects in 25 States
• Strong Easter Seals Affiliation
• Various Agencies
  • Private Rehab Centers,
  • Education: Birth-3, Special Ed Pre-Schools, Schools,
  • Hospitals and Health Centers
  • Community Mental Health Centers
• 200 PLAY Home Consultants trained
• 1000 children per year provided services
• 15 Sites in Michigan

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The P.L.A.Y. Project: Michigan

14 PLAY Projects serving the state

The PLAY Project

Training Process I

- Intensive training weekend – 4 days
  - DIR Model, functional developmental levels
  - Home visit process
  - PLAY Skill Sequence
  - Taking videos, analyzing videos
  - Preparing reports for families
  - Administrative matters

Training Process II

- Home Consultant trainee builds caseload
  - Trainee ready to begin home visits following intensive training
  - Recommend caseload of 6-25 children with ASD
  - Videos obtained at home visits

Training Process III

- Supervision, Certification, Licensing & Cost
  - Portion of home visit videos sent to Supervisors
  - Supervisors provide trainee with constructive feedback by audiotape
  - 20 videos sent over 12-18 month period
  - Certification expected on completion of Supervision process
  - Agency licensed annually $750 (not 1st year)
  - Cost: $4500-5800 depending on number
  - Designed to be self-sustaining

Internet: Relate Now

- Secure virtual community for families with a child with autism
- Parents select team for child
- Videos can be uploaded and reviewed from a distance.
- Videos archived as examples
- Expert blogs and articles
- Specifically designed for PLAY Project
- Long distance case studies and webinars
- $30 monthly subscription pays for service

P.L.A.Y. Project & Programs

The PLAY Project

- Office Visit at U of M
- Diagnosis
- Referrals to SLF / Of A
- Home Consult.
- Monthly half day visits
- Train parents in DIR model
- Video feedback training (FEAS)
- Community-based training
- Introductory 
- Training Center
- Parent Support
- Parent/Prof Partnership
- Advocacy and Resources
- NIMH trial planned

PLAY Project

Regional Training Center

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Research Timeline I

- Pilot cost-effective clinical program 2000-2009
- Pre-Post, uncontrolled study 2005
  - Outcome measure: Greenspan/DiGangi FEAS
  - Measure of functional developmental gains
  - 68 Children
  - Significant statistically and clinically
  - Published in *Autism* 11, no. 3 (2007) 205-224

The PLAY Project

Results: Fidelity

![Fidelity Graph]

p = 0.09

The PLAY Project

Program Evaluation: Results

- Satisfaction
  - 74% completed surveys
  - 70% were very satisfied
  - 10% satisfied
- Clinical Outcomes
  - Based on FEAS scaled scores 45.5% of children made good to very good progress after intervention.
  - Based on Home Consultant Clinical Scores
    - 52% of children made very good progress i.e. ≥ 1.5 FDL
    - 14% of children made good progress i.e. 1 FDL

The PLAY Project

Discussion

- First report of a parent training program evaluation based on DIR theory.
- PLAY Project Home Consulting Program operationalized DIR theory:
  - Extensive training manual
  - ‘Skill Sequence’
  - Structured home visiting
  - Video feedback

The PLAY Project

Discussion

- Limitations
  - Pilot study without controls
  - More in depth, repeated and objective measures needed
  - Daily logs unreliable
  - Parents were educated; families intact; only one parent working in many families.
  - Generalization to other environments not measured
Research Timeline II

- Phase I: Pilot NIMH SBIR Grant 2005
  - 1 year study to pilot procedures for RCT
  - Controlled, 40 children at 4 Easter Seals sites
  - Partners: Easter Seals & Michigan State University
  - Small number of children, 5 month study
  - Positive statistical trends
  - Established feasibility for RCT

Research Timeline III

- SBIR NIMH Phase II—Awarded, Sept. 2009
- 3 Year, $1.85 Million
- Easter Seals & Michigan State University
- Consultants: Greenspan, Howlin, & Mahoney
- Randomized, controlled, multi-site, blinded study
- 5 ES sites, 60 children per site x 2 years = 120

Research: Implication

- IF effectiveness proven...
- PLAY Project will provide a replicable method
- Using an efficient train-the-trainer model
- At relatively low cost to parents and society
- That can be broadly and quickly disseminated
- To serve a growing, unmet national need

P.L.A.Y. Project & Programs
(Play and Language for Autistic Youngsters)
Richard Solomon M.D., Project Director

www.playproject.org

Office Consultation
- Office Visit at AACDBP
- Diagnoses
- Referrals to SLP, OT & Home Consult.

Home Consultation
- Monthly half day
- Train parents in D.I.R.
- Video feedback training (P.E.A.S.)

Training Program
- Community-based trainings
- Introductory & Intermediate
- Training Center

MAP Parent Support
- Parent Support
- (Gen. Prof.
- Advocate and
- Resources

Prop. Eval. & Research
- Pre-Eval of Home Consult., Program and Comm. Train.
- NIMH trial planned
### Six Functional Developmental Levels (FDLs) – “The Packet”

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<td><strong>B.</strong> Astra handout – summary of DIR levels</td>
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<td><strong>C.</strong> PLAY Skill Sequence</td>
<td><strong>D.</strong> Comfort Zone chart</td>
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DIR Model: Strategies

6 Functional Developmental Levels

1. Shared Attention & Regulation (FDL 1)
2. Engagement (FDL 2)
3. Two way Communication (FDL 3)
4. Complex two-way Communication (FDL 4)
5. Shared Meanings & Symbolic Play (FDL 5)
6. Emotional Thinking (FDL 6)
**Stage 1: Self-Regulation and Shared Attention (Interest in the World)**

The child’s ability to enter and sustain a state of shared attention with another person and stay focused, organized and calm (first learned at 0-3 months).

- Harness all available senses, as well as motor capacities, to help child stay calm and regulated in order to draw child into shared attention.
- Involve child in enjoyable interactions that involve looking (look and examine faces), hearing (focus on voices), touch (pleasurable tickles, stroking or sharing an object or toy) and movement.
- Increase the interactive circles of communication and sustain shared attention as child develops.
- Use constructive and playfully obstructive strategies with affect cues to stretch the child's capacity for shared attention.

*When shared attention is not developed child's attention may be fleeting, easily distracted, preoccupied and/or lethargic and passive.*

**Self-Regulation and Shared Attention: Additional Information**

**Other Examples…**

**The infant:**
- Is calmed by being held, talked to, touched, looked at, and interacted with. Is starting to be able to calm himself down. Remains calm for two or more minutes at a time.
- Shows more interest in the world. Focuses on sights and sounds for three or more seconds.
- Holds head upright; follows objects with eyes; and responds to sounds.
- Makes eye contact.

**An older child:**
- Will be able to stay connected with people while playing a game that she enjoys.
- Will be able to calm himself down after getting overly excited (such as during rough housing).
- Who tends to be passive will be able to motivate herself to pay attention and join in with others and sustain interest.
- Will begin to be able to tolerate transition to a new activity, which may not have been his choice.
- Has sleeping and eating patterns that are becoming more regular.

**Goals Related to Stage 1: Self-Regulating & Shared Attention**

1. Child will sustain shared attention with a special adult in sensorimotor interactive play using the child's preferred and pleasurable sensory and motor modalities, such as movement, looking, touching, or listening.
2. Child will regulate his sensory system in order to sustain shared attention with support.
3. Child will regulate his sensory system in order to sustain shared attention independently.
4. Child will increase shared attention by increasing interactive circles of gestural communication, resulting in a continuous flow of interactions between child and adult rather than trying to focus on a particular object or toy.
5. Child will sustain shared attention with a peer in interaction.
6. Child will sustain shared attention in a group.
7. Child will sustain shared attention independently across contexts.

Stage 2: Engagement and Relating

The ability to form relationships and attachment and to engage another person with warmth and pleasure (first learned at 2 to 7 months)

- Woo the baby into engaging you with pleasure and delight. This can be seen when baby brightens with a smile, focuses on faces, moves arms or legs to the rhythm of caregiver’s voice, vocalizes in response to caregiver’s cadences, turns or reaches toward caregiver.
- Encourage growth of intimacy and caring – notice the gleam in the child’s eye when child interacts with you along with a sense of falling in love.
- As child develops, deepen the relationship to include the full range of feelings such as assertiveness, anger or sadness. Notice that these feelings can be incorporated into the quality and stability of the child’s engagement (e.g., does he/she withdraw or become aimless when under stress, does she stay connected when angry or scared?)
- Emphasize the importance of relationships constantly in order to help the child develop a sense of security, intimacy, caring and empathy for other. Relationships also provide the foundation to encourage progress in related areas where child must work really hard to develop motor planning, language acquisition, and a positive attitude toward all learning.

When relationships and engagement are weak (e.g., the absence of trusting, positive expectations), avoidance, distrust, or apathy may take their place.

Engagement and Relating: Additional Information:

Other Examples...

The infant: responds to simple rhythmic movements and sounds (like boom, boom, baboom)
The older child: will stay engaged with peers and adults.

Goals related to Stage 2: Engagement and Relating

1. Child will form relationships with special adults through pleasurable and enjoyable interactions.
2. Child will sustain engagement in reciprocal social interactions with special adults that bring pleasure and joy.
3. Child will sustain engagement in reciprocal social interactions when annoyed and protesting.
4. Child will increase sustained engagement by increasing the circles of communication.
5. Child will increase sustained engagement through a wider range of emotions, such as jealousy or fear.
6. Child will sustain engagement with a peer with adult mediation.
7. Child will sustain engagement with a peer "expert player".
8. Child will sustain engagement within group interactions.
Stage 3: Two-Way Intentional Communication

Back and forth affective signaling and communication to convey intentions, interests and needs (first learned at 3-10 months).

- Follow baby's lead and challenge him to communicate with you through the exchange of gestures and emotional signals about his affects (interests, needs, or intentions) and also respond to your affective signals in a back and forth reciprocal pattern.
- Elicit communication. Use affect cues (signals) to woo and wait for child's purposeful social gestures (facial expressions, making sounds, reaching, pointing, throwing, movement, etc.) to express his desires, objections or other feelings.
- Encourage the flow of continuous communication by opening and closing circles. A circle is opened when the child evidences some interest or initiates a behavior; e.g., the child looks at a toy, and the parent or caregiver follows the child's lead by picking up the toy and showing it to the child. The child closes the circle by reaching for the toy, while acknowledging (looking at) the parent, nodding with a smile, etc.
- Encourage communication by building on child's interests, initiative, and purposeful behavior. Challenge him to do things to you, help him achieve his goal, and later build obstacles to add steps and increase the number of circles.

Two-way communication is the basis for all relationships, as well as language and learning where conversations and exchanging information are necessary.

Two-Way Intentional Communication: Additional Information

Other Examples
- Child is beginning to have his own ideas. You begin to have a sense of the child's Personality
- Child shows desires by pointing, reaching, making sounds to get something or to be picked up.
- Child purposefully creeps or crawls; comprehends and initiates different sounds; and discriminates between people.
- Child engages in back and forth interaction, gestures. (Ping-pong).
- Child acts with purpose and intention. (Reaches up to be picked up).
- Older children will be able to open and close circles with adults and peers even when they are feeling a variety of different strong emotions.

Goals related to Stage 3: Two-Way Intentional Communication

1. Child will interact in a back-and-forth rhythm in animated exchanges using facial expressions, sounds, and other gestures.
2. Child will initiate purposeful interactions around desires (open circles) and will close circles following adult’s response to her initiative.
3. Child will increase number of purposeful interactions around desires for sensorimotor activities, to go somewhere, to obtain objects, or in response to adult strategies to expand the number of circles;
for example, when the adult poses obstacles, plays "dumb," or creates extra steps to reach desired goal.

4. Child will increase number of purposeful interactions using imitation.

5. Child will increase number of purposeful interactions using simple gestures, such as reaching, taking, pulling, or pointing.

6. Child will increase number of purposeful interactions across widening range of emotions, such as dependency, assertiveness, and jealousy.

7. Child will increase purposeful interactions in various processing areas, including visual-spatial, motor planning, perceptual motor, auditory processing, and language.

8. Child will sustain purposeful interactions with a peer with adult mediation.

9. Child will sustain purposeful interactions with a peer "expert player."

10. Child will initiate purposeful interaction with a peer spontaneously.

11. Child will sustain purposeful interactions within group interactions.
Stage 4: Purposeful Problem-Solving Communication

The ability to use complex circles of communication by stringing together a series of gestures, actions and words into an elaborate problem solving sequence of interactions which helps child develop a sense of self (first learned at 9 to 18 months).

- Become an interactive partner with a toddler as she learns to use a continuous flow of gestures with you to pursue her interests and wishes and to meet her needs.
- Combine affect cues with action (be animated and show affect through tone of voice and facial expressions) while creating interactions. Your goal is to help your child learn to open and close multiple circles of communication. This begins by using a dialogue without words through subtle facial expressions, a gleam in the eye, and other emotional signals or gestures, to a dialogue with problem solving words.
- Work up to a continuous flow of 20 to 30+ back and forth circles of communication, e.g., child can take a parent by the hand, walk her to the door, point that she wants to go out, and perhaps vocalize a sound or word to further the caregiver's understanding of his intentions.
- Expand the conversation by asking where child wants to go, what they need, who else will come, what they will get, what else and where else, etc. These conversations are necessary for negotiating the most important emotional needs of life, e.g., being close to others, exploring and being assertive, limiting aggression, negotiating safety, etc.
- Increase interactive range of affects and emotions when solving problems (e.g. feed hungry baby, bandage hurt knee, fix broken truck, chase away hungry wolf, etc.).
- Encourage different emotional patterns, e.g., dependency, assertiveness, pleasure, etc., organized into integrated, problem solving affective interactions. Look out for child polarizing and being dominated by one or another feeling state (organized aggression and impulsivity, organized clinging, needy or dependent behavior, organized fearful patterns).

Purposeful Problem-Solving Communication: Additional Information

Other Examples…

- Child imitates motor actions (throws ball to mom, pop beads). Can imitate pretend play (feeds the baby, but imitates only the motor action without the symbolic act of pretending to be parent).
- Child follows a few one-step directions, uses objects functionally, delayed searching (looks persistently for bottle).
- Child begins to understand others’ emotions (happy, sad, fearful) by reading words/intonation (Yuck), facial expressions, gestures.
- When feeling different emotions, child can remain engaged, and interactive (when the child gets upset because his brother has his toy, he stays connected and communicating, instead of becoming self absorbed or having a tantrum.)

Goals related to Stage 4: Purposeful Problem-Solving Communication

1. Child will express communicative intent through gestures or words to get what he wants.
2. Child will sequence (motor plan) in order to execute an idea, such as a desire for a cookie, to pull a chair over to a cabinet, climb up, open cabinet, open container, get cookies and smile at mom.
3. Child will sequence (motor plan) in order to execute a desire; for example, in order to play with Dad, who is reading the paper on the couch, the child will climb up, bounce on Dad, and pull him onto the floor to play.

### Stage 5: Creating and Elaborating Ideas (Symbols)

The child's ability to create ideas (symbols) observed in pretend play and words (phrases and sentences) to convey some emotional intention (begins between 24 to 30 months).

- Encourage child to relate sensations, gestures and behaviors to the world of ideas that have meanings which can be shared with others in pretend play and drama. Whether the animals are fighting, the dolls are hugging, or there is a tea party, ideas (symbols) are guiding this play.
- Enter the child's ideas through his make believe world as a character in his drama using words and actions together. Let child initiate the play idea and through interaction (dramatization in roles), elaborate with expanding themes and range of emotions (closeness, assertiveness, fear, anger, jealousy, aggression, etc.) which child can explore and express safely.
- Encourage action words instead of acting out to convey intent and feelings. When feelings and impulses are elevated to the level of ideas they can be expressed through words and play instead of acting out (e.g., child doesn't have to hit his friend, but can say, "I'm mad.").
- Engage in long conversations to communicate interests, feelings, desires and objections throughout the day.
- Promote symbolic play in order to provide the distance from real life and immediacy of needs to differentiating self from others through different roles, feelings, and actions (child pretends to be a mommy comforting the frustrated baby who broke his toy).

### Elaborating Ideas: Additional Information

Other Examples

- Child gains the ability to use ideas (words) to convey feelings and intentions. ("More juice?" "No open!" "Kiss baby.")
- The child imitates familiar pretend actions, such as hugging or feeding a doll. But now the child views herself as the doll's mommy. Increasingly the child develops symbolic play skills as a way to understand complex feelings (Dolls go to bed, hug, or fight).
- Symbolic play begins to have emotional themes, closeness, assertiveness, fear, anger, (Feeding the doll: doll tells you it doesn't like pink ice cream; Pretends to go to the park: doll is afraid of slide.)
- Child involves you in his play, i.e. he is not exclusively playing by himself.
- Child jumps, runs, scribbles, comprehends simple designs.
- Child throws ball, draws a line, reproduces simple design.
Goals related to Stage 5: Elaborating Ideas

All the goals at levels V and VI assume that the child is creating ideas while playing interactively and spontaneously with another adult, child, or group. Some children may create ideas but prefer to play alone or act out all the roles themselves. These levels are not fully reached until the child is fully interactive based on previous levels of established shared attention, engagement, and two-way communication.

1. Child will initiate the use of realistic ideas in interactive imaginative play, such as by hugging the dolls.
2. Child will initiate the use of ideas using realistic verbal interactions.
3. Child will express ideas derived from her affect or intent, such as saying "Play outside!" when she wants to go outside.
4. Child will express ideas derived from her affect by combining words and reality-based actions, such as sequence of pretending to be hurt and going to the doctor to get better.
5. Child will engage in conversations to express ideas.
6. Child will elaborate on ideas through increasing verbal and symbolic play sequences, such as getting hurt in a crash, going to the doctor, being examined, and going home.
7. Child will create imaginary (not reality-based) ideas using magical thinking/powers.
8. Child will assume different roles and act as the character in role-play.
9. Child will predict how others will feel or act in certain situations.
10. Child will respond to other’s feelings appropriately.
11. Child will demonstrate confidence to resolve conflicts that come up in social situations, such as waiting, trading toys, taking turns, playing together, asserting self to retrieve his toy, joining in, or defending others.
12. Child will assume multiple roles and use figures to represent characters.
13. Child will expand ideas to include a wide range of themes and feelings.
**Stage 6: Building Bridges Between Ideas (Logical Thinking)**

The ability to build logical bridges or make connections between different emotional ideas (emotional thinking) (begins between 36-48 months).

- Challenge child to connect her ideas together by seeking her opinion, enjoying her debates, and negotiating for things she wants using logical reasons. Begins with logical conversation involving at least two give and takes: "Time for school." "I don't want to." "Why?" "I feel sick now."
- Encourage child to engage in pretend play with both peers and adults where the story or drama "makes sense", with a beginning, middle and end where elements in the drama logically fit together.
- Promote the use of pretend play, words, and/or visual symbols to elaborate a partially planned pretend drama (theme or idea is identified in advance), or engage in logical conversation dealing with causal, spatial, and/or temporal relationships between themes.
- Challenge child to create connections between differentiated feeling states, e.g., "I feel happy when you are proud of me!" Identify relationship (contingency) between feelings, thoughts and actions.
- Expand identification and differentiation of more and more subtle feeling states, e.g., lonely, sad, disappointed, annoyed, frustrated, etc.

This capacity is a foundation for higher level thinking, problem solving and such capacities as separating reality from fantasy, modulating impulses and mood, and learning how to concentrate and plan.

**Building Bridges Between Ideas: Additional Information**

Other Examples...

1. Creates logical bridges between ideas (Can hold a simple, logical conversation involving at least two exchanges: "Time for school." "I don't want to." "Why?" "I feel sick." Or, alternatively "because there is a fierce dinosaur at school."
2. Is able to engage in pretend play with another person where the story or drama makes sense (the bears are going to visit the grandmother and then have a big lunch).
3. Pretend play, words, and/or visual symbols convey two or more logically connected, emotional ideas ("Hit bad guy because he did bad thing." "Hug nice dolly.")
4. Interactive pretend play with both peers and adults where there are a number of elements or elements in the drama that logically fit together. (Whereas in Stage 5 a child might dress up a doll, then seeing a crayon, scribble, then, seeing a drum, pretend to be a drummer, a child at Stage 6 connects the pieces. (She might have the drummer play for the dressed-up little girl and use the crayon to make invitations for the performance. Or, the doll might have a tea party, call friends to invite them, prepare refreshments, set the table, and determine the seating pattern.)
5. Child skips, hops, copies cross, can recall four or more numbers or words, asks and answers "why" questions, classifies and quantifies objects, recalls recent past.
6. Child takes turns with a toy, copies circle, uses full sentences and answers "what, where, who and doing" type questions, has a sense of quantity (big/little) emerging.
Goals related to Stage 6: Building Bridges between Ideas

1. Child will close all symbolic circles in both pretend play and reality-based dialogues.
2. Child will respond to "Wh" questions, including who, what, where, when, and why.
3. Child will debate, negotiate, and make choices when deciding what to play, what to do, where to go, and who goes first.
4. Child will connect ideas in logical ways that make sense (not fragment, change topic, or become tangential).
5. Child will integrate concepts of time in ideas.
6. Child will integrate concepts of space in ideas.
7. Child will integrate concepts of quantity in ideas and problem solving.
8. Child will explain reasons for feelings and actions.
9. Child will compare and contrast ideas, preferences, and other people's views.
10. Child will give opinions, selecting appropriate dimensions for views.
11. Child will create dramas with a beginning, middle, and end.
12. Child will identify motives of other people or characters' actions and understand different points of view and feelings.
13. Child will predict feelings and actions of other characters.
14. Child will recognize complex intents, such as deception, sarcasm, and conflict.
15. Child will reflect on feelings in both pretend dramas and conversations taking place in reality.
16. Child will expand play to full range of emotional themes, including conflict, aggression, and morality.
17. Child will reach higher levels of abstraction and will be able to see details as well as the big picture (trees and the forest).
18. Child will recognize strengths and weaknesses in self and others.
PLAY Skill Sequence: Summary

1. List Principles/Strategies Based on Comfort Zone (CZ), Sensory Motor Profile (SMP) and Functional Developmental Level (FDL)

2. Assess Child’s unique: CZ Activities, SMP & FDL

3. Define/List Daily & Weekly Curriculum/Activities

4. Methods: Follow Cues, Lead & Intent to Increase Circles

5. Create Menu Of Specific Techniques to Enhance Methods

6. Video Tape/Critically Review Interactions and Progress

7. Reassess and Adjust Curriculum, Methods & Techniques
PLAY Project
Autistic Child’s World View
*Comfort Zone Chart*

- Complex Relationships
- Simple Relationships
- Imagination
- Language
- Games
- Sensory Motor
- Comfort Zone
- Play
- Follow Cues/Engage
- Perseveration
- Direction of Intervention
The PLAY Project
Reaching the Autistic Child’s Potential
Zone of Proximal Development

- Zone of Potential Development
- Zone of Proximal Development
- Comfort Zone
Sensory Modulation Continuum

(Range of Response)

<table>
<thead>
<tr>
<th>Shutdown/ withdraw</th>
<th>Lack Attention</th>
<th>Habituate</th>
<th>Orient</th>
<th>Attend</th>
<th>Hyperfocus</th>
<th>Escalated</th>
<th>Approach/Avoid</th>
<th>Fight/Flight</th>
<th>Shutdown/ withdraw</th>
</tr>
</thead>
</table>

*Failure to orient*  <>  *Homeostasis*  <>  *Over Orientation*

High Neurophysiological Threshold

Poor Registration
Sensation Seeking

Low Neurophysiological Threshold

Sensitivity to Stimuli
*Fight or fright*
Sensory avoiding
*Flight or freeze*
The P.L.A.Y. Project™
(Play and Language for Autistic Youngsters)
Techniques

Intensive Interventions for Young Children with Autistic Spectrum Disorders
Richard Solomon M.D., Project Director

PLAY Workshop
PLAY Techniques
Functional Developmental Level 1-4

- Attention/Engagement & Two Way Communication
  1. Being With/Going for Affect
  2. Sensory-motor Play
  3. Theme & Variation
  4. Taffy Pulling
  5. Salient Language
  6. Rhythm & Music

PLAY Workshop
PLAY Techniques
Functional Developmental Levels 1-4

- Attention/Engagement & Two Way Communication (cont.)
  7. Sense of Humor, Suspense, Surprise
  8. One and Two Step Commands
  9. Playful obstruction
  10. Making them work
  11. Rewarding/Reinforcing
  12. Making behaviors purposeful

PLAY Workshop
PLAY Techniques
Functional Developmental Levels 4-6

- Shared Meanings & Emotional Thinking
  1. Simple pretend play
  2. More complex pretend play
  3. Multiple circles of communication
  4. Feelings, Empathy
  5. Outings
  6. Using motivation
  7. Appropriate Language

PLAY Workshop
PLAY Techniques
Functional Developmental Levels 4-6

- Shared Meanings & Emotional Thinking (cont)
  8. Essays
  9. Answering ‘wh’ questions
  10. Time Concepts
  11. Practicing Pronouns
  12. Model, Rehearse, Expect
  13. Theory of Mind: Puppet Play
  14. Social Stories
  15. Meta-cognitive strategies
**PLAY Workshop**

**PLAY Techniques**

**Functional Developmental Levels 4-6**

- *Shared Meanings & Emotional Thinking (cont)*
  - Everything come alive
  - Mirroring/Reflecting: Feelings
  - Three-way modeling
  - Speaking ‘to’ and speaking ‘for’ the child
  - Finishing up/completing a task
  - Negotiating the relationship
  - Overdramatizing

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**PLAY Project Workshop**

**PLAY Techniques**

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**PLAY Workshop**

**PLAY Techniques with Examples**

For Functional Developmental Levels 1-4

**Shared Attention & Two Way Communication**

1. *‘Being with’*
   - Sit near the child as he plays in his comfort zone
   - Keep engagement going. Follow cues gently
   - Make comments/describe what the child is doing: “You’re jumping high!”
   - Repeat words/sound if they say anything
   - Gently open or close one or two circles: offer a toy
   - Give the child what he wants. Use natural motivations.
     - Turning on and off the water together
     - Hand him leggos, train, cars, books to line up
   - Do not command, direct, teach

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**PLAY Workshop**

**PLAY Techniques with Examples**

For Functional Developmental Levels 1-4

**Engagement & Two Way Communication**

2. *Sensory-motor play*
   - (Touch) Rubbing the back, tickling, wrestling, rough housing
   - (Vision) Watching/blowing bubbles
   - (Sounds) Humming, drumming
   - (Rhythm) Clapping on the back with rhythm
   - (Movement) Wind up toys
   - (Kinesthetic) Shaking the arms in rhythm
   - Putting the child on a spinning chair saying “go” and stopping her while saying “stop”
   - Jumping the the bed

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**PLAY Workshop**

**PLAY Techniques with Examples**

For Functional Developmental Levels 1-4

3. *Theme & Variation*
   - Open and close door.
   - Open and close door with a song
   - Put your hand in the door and close it (gently) and say ‘ouch’
   - Hold the door closed until child complains
   - Play peek a boo on the other side of the door.
   - Use a puppet to play peek a boo
   - Have the puppets head get caught in door and cry
   - Bonk you head into the door & fall down dead
   - Build anticipation with each variation

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**PLAY Workshop**

**PLAY Skill Sequence: Techniques**

1. List Principles/Strategies Based on Comfort Zone (CZ), Sensory Motor Profile (SMP) and Functional Developmental Level (FDL)
2. Assess Child’s unique: CZ Activities, SMP & FDL
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## 4. Taffy Pulling

- Stretch the interaction. Open and close 2 or 3 circles instead of one. Keep interaction going.
- Play dumb for a couple of circles. Ask the child what they would like to do?
- Give the train and ask for it back.
- Then try to take it back and let them resist you.
- Say “mine” i.e. gently tease the child.
- Give the train but fly it around their head first.
- After they have the train spin each wheel
- Make a different funny sound for each wheel

## 5. Salient Language

- Label each activity like “SPIN” for a spinning game, “DOOR” for a door game, etc.
- Then consistently use the word: “Would you like to play “SPIN”? Or “Let’s open and close the DOOR!”
- Say the word/words loudly and clearly.
- Use salient words across different settings/care takers
- Use sequences of language like 1-2-3, Ready-Set-Go
- Wait to see if child will finish the sequence: 1-2-3...
- Repeat key words: Do you want MORE?
- Use opposites: OFF/ON, UP/DOWN, OPEN/CLOSE

## 6. Rhythm & Music

- Use rhythm in your speech patterns frequently
- Sing Children’s Songs like Ring Around the Rosy & Row Row Row Your Boat, etc.
- ‘Capture’ child in your lap and move their arms up and down while counting 1-2-3.
- Pound gently on their backs and sing old MacDonald with each pounding motion.

## 7. Sense of Humor, Suspense, Surprise

- Find ways to make them laugh
- Have them push your nose and make a sound
- Fly them on your feet
- Pretend you are asleep. Wake up suddenly when the child comes near.
- Play chase/I’m going to get you
- Capture them in your prison and let them get away
- Try slapstick (Bumping your head, falling down)
- Use mock anger (“Hey you give me that back. You took my toy.”)

## 8. One and Two Step Commands

- Ask them to give you something (and then . . . )
- Ask them to put it someplace else
- Ask them to get their shoes and ask for different feet. (“No not that foot, the other foot!”)
- Have them make choices (“Do you want this car or this car.”)
- Have them get the ball and give it to daddy.

## 9. Playful obstruction

- Get in their way so they have to move you
- Play dumb when they want something and make them open another circle.
- Close the door when they want it open
- Move the trains out of line ‘by accident’
10. Making them work
- When you think they can do something expect them (using your voice, facial gestures and pregnant pauses) to do it
- Play dumb and make them show you or tell you what they want
- Expect them to use their words ("Do you want more? Tell me you want MORE. (Use salient language.)

11. Rewarding/Reinforcing
- Applaud their accomplishments (if they like applause).
- When they initiate a response (open a circle), reward them with a rub or tickle or rough housing
- Give immediate rewards for accomplishments (like sensory motor play when they use their words.)

12. Making Random Behaviors Purposeful
- When they open and close doors get on the other side and say Hello when they open the door and goodbye when they close it.
- When they build blocks call it a ‘tower’
- When they pour water turn it into a ‘pouring game’ by offering them different containers.
- When they line up trains make a choo choo sound

13. Expectant waiting
- Waiting is a primary technique but it must be expectant waiting i.e. waiting for a return response.
- This helps children initiate (which is the essence of Greenspan Functional Level 3).
- The key here is to make an overture and then see what the child wants to do.
- Waiting allows you to observe the child more accurately and increase circles of interaction.

14. Going for Fun
- Ask yourself: “What would the child love to do with me?”
- Then wait for an answer. This is an intuitive way to play.
- You can use this technique both in the moment as you play but also as a way of generating activities.
- Then list the activities and try them out. You’ll probably be right!

15. Big, Little, & Micro Circles
- This is a variation on ‘Taffy Pulling’
- A big circle happens when you say, “I’m gonna get you” and the child runs... . . .
- . . .Little circles happen when you chase and capture the child in your arms and say: You want a tickle? And child indicates: Yes, by looking or saying ‘more’ or ‘yes’. . . .
- Micro circles happen when you raise your hand to tickle and say slowly (as your hand starts coming down) so that the child connects with each word: I’m...gonna.... tickle...you....Here...it....comes....now (then tickle with a sudden final movement). (See also 'Suspense/surprise')
**PLAY Workshop**

**PLAY Techniques with Examples**
For Functional Developmental Levels 1-4
For complex two way communication, shared meanings & emotional thinking

16. **Add a word**
   - This helps children expand their language.
   - When the child gives you one word, you give them two back. If they give you two, give three, etc.
   - You have to imagine what the child would say if he or she could talk in longer sentences.
   - For example, when the child says: “Up!” You might say: “Up, momma.” or “Go up.”
   - Eventually you will add several words: “Momma, go up please. More cookie.”

17. **Asked and Answered**
   - This helps children expand their language and is a form of Salient Language.
   - You say the word in the form of a question and then say the word in the form of an answer.
   - For example, if the child wants a cookie, you would say: “Oh, you want a cookie?” Then as you are handing the cookie over you say: “A cookie” (You should stretch out/emphasize the sound of the ‘answer’ word.)

18. **Sequences/Little Stories**
   - Create little sequences that have 1, 2, or 3 steps.
   - A good example would be “door play”.
     - First, open the door and play simple peek-a-boo.
     - Then knock on the door and wait. Then pop your head in and say ‘peek a boo!’
     - Then say “Where’s ____ (child’s name)?”, then knock on the door, wait, and then play peek-a-boo. Use rhythm to keep the child’s interest.
   - I call these ‘little stories’. The idea is to help the child understand cause and effect (more than just pushing a button and making a noise).
   - Use with skills of daily living (e.g. getting shoes on, going out, taking a bath, eating) as well as playing.

19. **Problem Solving**
   - This is fundamental technique begins at FDL 4.
   - The child wants something. You play dumb. They have to take your hand to the cupboard and point to what they want. That’s problem solving. (See “Playful obstruction”)
   - You say, “Time to go bye-bye.” They get up, get their shoes and bring them to you. That’s PS.
   - You ask: What do we do next? They hook their train to yours. That’s a higher level of PS.
   - Problem solving never ends!! Greenspan says: “Throw them curveballs, mix it up, make ‘em work.”

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**PLAY Workshop**

**PLAY Techniques**
For Functional Developmental Levels 4-6

- **Shared Meanings & Emotional Thinking**
  1. Simple pretend play
  2. More complex pretend play
  3. Multiple circles of communication
  4. Feelings, Empathy
  5. Outings
  6. Using motivation
  7. Appropriate Language

- **Shared Meanings & Emotional Thinking (cont)**
  8. Essays
  9. Answering ‘wh’ questions
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  11. Practicing Pronouns
  12. Model, Rehearse, Expect
  13. Theory of Mind: Puppet Play
  14. Social Stories
  15. Meta-cognitive strategies
**Shared Meanings & Emotional Thinking (cont)***
1. Simple pretend play
   - Give dolls and cars feelings or personalities (“I’m a car and I want to go fast up and down your arm.”)
   - Use slapstick with the dolls (Have them fall/say ouch)
   - Make the child begins to be able to open simple circles (FDL 3) challenge him to do one more circle. (“Your turn” or “What does your car want to do?”)
   - Build simple repetitive sequences if the child can follow. (“Hi. I’m a car. I want to say hello to the animals. Hi cow. Hi Horse. Etc.”)
   - Use books to look at pictures and have child show you the animals, etc.

2. More complex pretend play
   - Note the difference between ‘pretend’ and ‘real’
   - Add more circles to increase complexity.
   - Make themes become more complex.
   - Play “Army”. Work with aggression/helping out
   - Play doll “Hide & Seek” or ‘Chase’ Pretend fear).
   - Play “Halloween” Get candy from play animals.
   - Play “Tea Party” Work with hunger/wanting more
   - Play night night (bedtime rituals) with a doll

3. Multiple Circles of Communication
   - You can increase circles easily if you think of doing so
   - At first child may only close circles (i.e. respond to you.) Get them to do one more thing.
   - Use natural motivations like getting ready for a bath. Make them do every single thing to take a bath. Turn on the light to the bathroom. Turn on the water, etc.
   - Have them make choices about which toys they want
   - Challenge yourself to create 5 more circles. Write them down.

4. Feelings, Empathy
   - Identify feelings early on (“You’re mad about that!” or “Boy, that was FUN!”
   - ID your feelings. Use clear facial expressions.
   - Draw feeling faces,
   - Incorporate feelings into simple and complex pretend play (see above) or when reading stories.
   - Pretend to be “sad” or “mad” or “happy” or “scared” when playing with dolls.
6. Using motivation
– Using natural motivations increases the numbers of circles of interaction with the child.
– Natural motivators are: Leaving, Going outside, Getting dressed to go, Going for a bath, Going Swimming, Bedtime, Meals, Going for a ride. Anything sequence the child wants to do.
– Get child to open/close as many circles as possible as they go through the highly motivating activity.

7. Appropriate/Real Language
– Make requests using a natural tone of voice instead of ‘baby talk’ or shortened sentences.
– Instead of saying “Want more?” say “What do you want?”
– This is a way to generalize ‘salient language’ and increase the quality of interactions.

8. Essays
– More verbal children and can string sentences together. Expect them to use simple essays.
– When you are reading a book don’t just ask ‘yes and no’ type questions.
– Ask “What is going on on this page?” “Tell me 3 things you see going on.”
– Eventually expect the child to tell you about their day or a recent experience (see ‘Outings’ below).

9. Answering ‘Wh’ Questions
– “What” comes first. As in “What is this animal?”
– “Where” is a close second. “Where are your shoes?”
– “When” comes next. Set up sequences of activities. (See OUTINGS below) It helps to have sequences of pictures or schedules. First we do this. Then we do that.
– “Why” is a FDL 4-5 skill. Develop simple cause and effect situations. (“The doggy is sad BECAUSE he bumped his head.”)
– These may seem like ‘teaching’ but can be incorporated into PLAY activities when the child is ready.

10. Time Concepts
– Children at Level 5 can understand simple time concepts. “Wait. OK now it’s your turn.” gives rudimentary sense of time.
– Work with calendars, schedules, clocks, seasons in the context of everyday life.
– Use the words “Yesterday, today, tomorrow, later, etc” connected to real life events (“Later we are going to go to MacDonald’s)
– Stories are a great introduction to time because “What happens next? Oh, then he did X, Y, Z.”

11. Practicing Pronouns
– Pronouns are hard for children with autism
– Start with receptive language: ‘Give it to me/her/him.’ Or ‘You take it.’
– Using pronouns clearly & repeatedly in pretend play and in daily life can be helpful.
– Puppet play with pronoun concepts can be helpful.
12. **Model, Rehearse, Expect** (for advanced workshop) Demonstrates complex social skills that are almost on the verge of being learned.
- **Model** dramatic situation with toy characters
- **Rehearse** with people playing out the situation
- **Expect** means expecting the child to do the skill in question in a real life situation
- Example: Learning ‘Hi and Goodbye’. The doll would use the greetings, the parents would use it and then the child would be expected to use it.

13. **Theory of Mind: Puppet Play** (for advanced workshop)
- Puppet play can teach children at Level 5 that people are thinking about things.
- Puppets can be the ‘thinking’ part of the brain
- The puppet can say, “I sure would like some ice cream” and the person playing can look like they are thinking and then say, “I sure would like some ice cream.”

14. **Social Stories** (for advanced workshop)
- Based on the work of Carol Gray.
- Social stories address children’s fears, needs, desires, behaviors, feelings
- Stories are simple and descriptive.
- Can help children learn to cope more quickly with difficulties (e.g. fears) than other methods.
- See references.

15. **Meta-cognitive strategies** (for advanced workshop)
- MCSs can help the child avoid stresses by talking about the stressful situation before it becomes a problem.
- For instance: “It’s too noisy in here. I want to get out.” is a meta-cognitive strategy.
- Use the “Model, Rehearse, Expect” technique to help children learn MCS.

16. **Everything come alive**
- This teaches children imagination skills.
- Make any object act like a puppet.
- Use a high silly voice or a deep silly voice.
- Salt shakers can say “Here I come. Shake me. I make snow!”
- Make a (half a) glass of milk waddle along the table like a person and say: “Hi. Would you drink me?” or “No, no, no! Don’t drink me!!”
- Any object can ‘come alive’.

17a. **Mirroring/Reflecting: Feelings: Part 1**
- This important technique helps children understand their own feelings and put words to their feelings.
- First, be alert to all the feelings the child exhibits through his/her gestures.
- Then label the feeling with words and gestures that express the feelings for the child. Match the intensity with your voice.
- This is called ‘mirroring’ the child’s feelings because you act like a mirror only reflecting back what you see.
- A mirror would not ask questions (i.e. ‘Are you mad?’) Instead use statements. ‘You’re mad!’
PLAY Techniques with Examples
For Functional Developmental Levels 4-6
For complex two way communication, shared meanings & emotional thinking

17b. Mirroring/Reflecting: Feelings: Part 2

- Imagine what the child would say if he or she could tell you how he/she feels.
- For example: The child is very angry that his brother took his toy. You say: “That’s my toy! Leave my toy alone!!!!”
- Other examples: “Weeee. That was fun!” or “You didn’t like that!” or “Stop it, Mommy, please!”
- It may seem that we are encouraging children to be disrespectful but we are not...
- . . . It’s very important that the child be allowed to ‘talk back’ appropriately even if angrily. (see the technique ‘Negotiating Relationships’)

18. Three-way modeling

- Once the child is tuned in to the world and imitating fairly well, try 3-way modeling.
- Have dad and mom ‘model’ for the child.
- Let’s say we want the child to answer ‘wh’ questions.
  - For example, at the dinner table mom could say: Daddy what are you eating? Dad: “I’m eating peas.” Then Dad say’s: “Mommy, what Are you eating?” Mom say: “I’m eating some delicious chicken.”
  - Then the parents ask the child.

19a. Speaking ‘to’ and Speaking ‘for’ the Child.

- These are two related techniques that help children expand their language once they are talking with meaning. Age equivalent 18 mo. to 2 years old. Greenspan level 4-5.
- Speaking to the child is easy. It means not baby talking but using appropriate language.
- Parents whose child has evolved to level 4 often continue to use salient language. This is not good for this stage.
- Talk to the child in normal tones and rhythms and usage. Let them hear the music of the language.

19b. Speaking ‘to’ and Speaking ‘for’ the Child (continued)

- Speaking ‘for’ the child is trickier. It is related to ‘Add a word’ and ‘Three way modeling’ techniques, only more sophisticated.
- This involves modeling language for the child from the child’s perspective i.e. What would the child say if he could say what he means. You will speak ‘for’ him.
- For example, the child says, “Up!” You say, “Pick me up, daddy.”
- Or the child says “Go out.” and you say, “Go outside, momma.” Get it?

20. Finishing up/completing a task

- Once a child is understanding most of what you say then it is time to make them finish up tasks.
- Don’t let them ignore you!
- This doesn’t sound like ‘following their lead’ but, in fact, it is because it is within their capacity (their ‘lead’ so to speak).
  - When you call their name, make sure they respond. (See “Negotiating the relationship”)
  - Make them say things the ‘right way’.

21a. Negotiating the relationship

- Important for children solid at FDL 5 or higher.
- Be aware of the boundaries of your relationship and help the children be aware of them too.
- Don’t let them break off the relationship without at least acknowledging it. “Hey, where you going?”
  - If I walked away from you suddenly without saying anything, you would think it was weird!
- Expect the child to say, “All done” or “No more play.” (or you say it for them). (See ‘Finishing up’).
21b. Negotiating the relationship (cont')

- Previewing and reviewing what you are going to do and what you have just done is a wonderful way to help the child understand relationships.
  - “First, let’s play trains, then we can play chase and THEN we can sword fight!”
  - “We played with trains; we chased; we played sword fight. That was fun to do together!”
- I also call this “huddling” to make plans.
  - “OK. You be the good guy and I’ll be the bad guy and you can put me in jail.” or “How should play good guys and bad guys?”

22. Overdramatizing

- This technique is important to help children empathize. Children with ASD have poor abilities to ‘read’ others emotions.
- Overdramatize your feelings:
  - When the child will not do something, cry and whine: “Please, please, I NEED it!!”
  - Make your face show the feelings you have.
  - Use big gestures or a more dramatic voice to make your point.

PLAY Skill Sequence: Summary

1. List Principles/Strategies Based on Comfort Zone (CZ), Sensory Motor Profile (SMP) and Functional Developmental Level (FDL)
2. Assess Child’s unique: CZ Activities, SMP & FDL
3. Define/List Daily & Weekly Curriculum/Activities
4. Methods: Follow Cues, Lead & Intent to Increase Circles
5. Create Menu of Specific Techniques to Enhance Methods
6. Video Tape/Critically Review Interactions and Progress
7. Reassess and Adjust Curriculum, Methods & Techniques
The P.L.A.Y. Project
FDL Progress Rating Scale

CHILD NAME: _______________________________________

REVIEW DATE: ___________________

HOME CONSULTANT: ___________________________

VISIT DATE: ______________________

Functional Developmental Level Definitions

LEVEL 1: REGULATION AND SHARED ATTENTION
LEVEL 2: ENGAGEMENT; INTIMACY
LEVEL 3: TWO-WAY COMMUNICATION; INITIATION
LEVEL 4: COMPLEX COMMUNICATION
LEVEL 5: EMOTIONAL IDEAS; SHARED MEANING; SIMPLE SYMBOLIC PLAY
LEVEL 6: EMOTIONAL THINKING; COMPLEX SYMBOLIC PLAY

Functional Developmental Level Scoring - Using Informed Clinical Judgment

Scoring is on a 0 to 100% scale. Score each Level in the chart below by checking the appropriate box:

0% = NONE = ability never present
10% = FIRST = ability or capacity appearing for the first time
25% = SOME = ability sometimes present
50% = HALF = ability present half of the time
75% = MOST = ability present most of the time
100% = SOLID = ability well established and always present

Percent scores may be added to companion Excel spreadsheet to produce graph of progress over time.

<table>
<thead>
<tr>
<th>PERCENTILE</th>
<th>LEVEL 1</th>
<th>LEVEL 2</th>
<th>LEVEL 3</th>
<th>LEVEL 4</th>
<th>LEVEL 5</th>
<th>LEVEL 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% - NONE</td>
<td></td>
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<tr>
<td>10% - FIRST</td>
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<tr>
<td>25% - SOME</td>
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<td>50% - HALF</td>
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<td>75% - MOST</td>
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<tr>
<td>100% - SOLID</td>
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</table>
### Disorders of Relating and Communicating
#### Functional Emotional Developmental Levels

<table>
<thead>
<tr>
<th>Child:</th>
<th>Caregiver:</th>
<th>Examiner:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Draw line through To highest level (1-6) child has reached</strong></td>
<td>Not Reached</td>
<td>Barely even with support – very intermittent (very in and out).</td>
</tr>
<tr>
<td>The more robust and qualitative, the higher the rating.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Functional Capacities

<table>
<thead>
<tr>
<th>I. Self-Regulation and Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take in sights and sounds and maintain shared attention</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Engagement And Relating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woo another or be wooed, stay engaged through emotions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III. Use Affect to Convey Intent - Two Way Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>For requests, emerging back and forth interactions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IV. Behavioral Organization Problem Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous flow of affective interactions with people for shared social problem solving</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>V. Creates and Elaborates With Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Represents ideas and emotional themes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VI. Emotional Thinking Logical –Abstract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Builds ideas, elaborates and can reflect on actions, motives, aware of time and space</td>
</tr>
</tbody>
</table>
### INDIVIDUAL DIFFERENCES

<table>
<thead>
<tr>
<th>Regulatory Capacities (reactivity)</th>
<th>Postural Control for Functions</th>
<th>Response to the Sounds, Gestures and Verbal Communication (in back and forth reciprocal interactions for communication)</th>
<th>Use of Vocalizations, Gestures, Words and Language Communication (in back and forth reciprocal interactions for communication)</th>
<th>Response to Visual Environment</th>
<th>Praxis – Executive Function - Prefrontal cortex orchestrating information for function. Praxis is the moment from which one faces the future with the resources gained from the past experiences.</th>
</tr>
</thead>
</table>
| Indicate:                         | Can sequence purposeful gestures and actions to obtain desires, to – 1. Simple physical actions to indicate desires (gaze, reach) 2. Physically mirror gestures 3. Physically imitate gesture 4. Imitate physical actions with purpose. 5. Obtain desires 6. Problem solve steps with body to move in space to interact with people & objects in environment  ● for exploration.  ● for function and purposeful use of toys  ● for self help  ● for back and forth interactions with family and peers.  ● (# ___ steps recorded) | Observations of the child’s ability to attune and orient to the auditory environment, to affect and gestures and to comprehend words (w) (with benefit of signs/gestures (s) and/or visual (v) strategies. 1. Orient to the auditory source in the environment (auditory figure ground). 2. Attune to key tones in another’s vocalizations. 3. Respond to key gestures in another interaction. 4. Respond to key words in another interaction. 5. Switch auditory attention back and forth between self and others (self monitor, other monitor & integration) 6. Follow directions (record # ___). 7. Understand questions (how, who, what, where, when, what if, if then). 8. Engage in conversations with abstract ideas. | The child uses: 1. Mirror vocalizations with the intention to communicate. 2. Mirroring gestures with intention to communicate. 3. Intentional use of unique non-verbal gestures to convey intentions. 4. Intentional use of affective tones and sounds to convey intentions. 5. Uses single meaningful words to convey intentions, actions and desires. 6. Uses two word phrases meaningfully. 7. Uses sentences meaningfully. 8. Uses phrases and sentences in back and forth exchanges with a logical flow. | The child uses visual spatial strategies systematically to explore and discriminate desired objects. The child can 1. Observe and focus on desired object 2. Alternate gaze (initiate joint attention visually) 3. Follow another’s gaze to determine the object of their attention and their intent. (respond visually) 4. Switch visual attention back and forth between self and other (self monitor, other monitor & integration) 5. Actively search for object she sees hidden. 6. Can explore two areas of room and search for desired object 7. Can explore more than two areas with active visual assessment of space, shape and materials. | Praxis encompasses all of these individual processing differences as it depends on the child’s  
- Ideation  
- Planning  
- Sequencing  
- Execution  
- Adaptation  
1. Initiates ideas in play with clear goals and purpose.  
2. Is able to associate sensory perceptions from the body, visual system, auditory system to develop a plan.  
3. Develop the steps of the sequence (# steps - 1, 2, 3, 4 …..)  
4. Execute the steps and persist.  
5. Adapt plan if it does not work or is interfered with by another’s action. |
| Re: responsivity in each sensory domain:  
  ___ Auditory  
  ___ Visual  
  ___ Tactile  
  ___ Vestibular  
  ___ Proprioceptive  
  ___ Odors  
  ___ Tastes | Dominant Functional Profile (Describe): | | | | |

1 - 4: Child requires caregiver support; 5 - 6: Child attains developmental level independently but constricted; 7: Age appropriate
Autism Interventions  
A Comparison*

<table>
<thead>
<tr>
<th>Play-based (The PLAY Project, Floortime, Hanen)</th>
<th>Behavioral (ABA, Discrete Trial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic and Flexible</td>
<td>Highly Prescribed</td>
</tr>
<tr>
<td>More Naturalistic</td>
<td>More Controlled</td>
</tr>
<tr>
<td>Child Initiated</td>
<td>Program Oriented</td>
</tr>
<tr>
<td>Follows Child’s lead</td>
<td>Program Goals Dominant</td>
</tr>
<tr>
<td>Developmental Analysis</td>
<td>Behavioral Analysis</td>
</tr>
<tr>
<td>One on one and/or in groups</td>
<td>One on one then groups</td>
</tr>
<tr>
<td>Early Generalization Common</td>
<td>Later Generalization Typical</td>
</tr>
<tr>
<td>Flexible Intensity</td>
<td>Intensity Prescribed</td>
</tr>
<tr>
<td>Activities/child Preference</td>
<td>Activities/program Oriented</td>
</tr>
<tr>
<td>Play Interaction</td>
<td>Teaching Drills &amp; Skills</td>
</tr>
<tr>
<td>Natural/Social Reinforcements</td>
<td>Strategic Reinforcements</td>
</tr>
<tr>
<td>Perseverations as Useful</td>
<td>Perseverations Extinguished</td>
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<tr>
<td>Documentation Varies</td>
<td>Documentation Intensive, Discrete</td>
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<tr>
<td>More Individualized</td>
<td>frequency counts</td>
</tr>
<tr>
<td>Peers Used Earlier</td>
<td>More Prescribed</td>
</tr>
<tr>
<td>Affect Emphasized</td>
<td>Peers Introduced Later</td>
</tr>
<tr>
<td>Parents as Play Partners</td>
<td>Behavior Emphasized</td>
</tr>
<tr>
<td></td>
<td>Parents as Program Facilitators</td>
</tr>
</tbody>
</table>

*Modified from Prizant and Weatherby, Seminars in Speech and Language—Vol 19, No 4, 1998
# DIR: Developmental Levels for Adult and Child

<table>
<thead>
<tr>
<th>FDL</th>
<th>Description</th>
<th>Adult and Child – Initiation and Circles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shared Attention and Self Regulation</td>
<td>- Adult does 100% of initiation to sustain shared attention as child develops.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Adult does almost all of the work – to get attention and looks - modulating pace of play for regulation.</td>
</tr>
<tr>
<td>2</td>
<td>Engagement</td>
<td>- Adult still does most of initiation, to Woo the child into engaging. Child will sustain engagement in reciprocal social interactions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Adult feels like they are doing a lot of work “entertaining” to get laughter, smiles, affect and engagement.</td>
</tr>
<tr>
<td>3</td>
<td>Two-Way Communication</td>
<td>- Child begins to initiate purposeful interactions around desires (open circles) and will close circles following adult’s response to her initiative and begins to have his own ideas. Child engages in back and forth interaction, gestures (Ping-pong).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- As child begins to initiate, Adult does more waiting for child’s intent. First time that adult feels some sharing of work.</td>
</tr>
</tbody>
</table>
## DIR: Developmental Levels for Adult and Child (cont)

| 4  | Complex Two-Way Communication | o Child can work up to a continuous flow of 20 to 30+ back and forth circles – large, small and micro-circles.  
|    |                               | o 50 / 50 adult and child. Child is responsible for half of the relationship. Adult waits for problem solving. |
| 5  | Shared Meanings and Symbolic Play | o Child can engage in long conversations to communicate interests, feelings, desires and objections throughout the day - use of ideas (words) to convey feelings and intentions.  
|    |                               | o Adult works again at expanding child’s pretend play and by asking ‘Wh’ questions. |
| 6  | Emotional Thinking            | o Child is challenged to connect her ideas together by seeking her opinion, enjoying her debates, and negotiating for things she wants using logical reasons.  
|    |                               | o Adult works at negotiating with child, keeping child ‘on his toes.’ Challenges child to think – thinking in general but also understanding and opening to others’ perspectives. |
Functional Developmental Level 1
Self Regulation & Shared Attention (Birth to 4 months)
• Can remain calm and regulated enough to share attention with people.
• Can sustain brief episodes of interaction.
  • Regulation derailed by Comfort Zone activities.
  • Stimming, scripting, lining up, etc. remove attention.
• When you see CZ, child has holes in FDL 1.
• Key Question: How much is the child with us?
• Where is the child's attention? What is the child's intention?
• Use 'The Rabbit Hole Techniques' to join the child at FDL 1.

Functional Developmental Level 2
Engagement (5-8 months)
• More sustained attention = engagement.
• You call to them and they look. Circles begin!
• Peek a boo is the classic FDL 2 game.
• Key Question: How easy is it to engage the child?
• This is the ‘sweat’ level. The parent/professional has to do the work (i.e. sweat) to keep the child engaged.
• Hard to follow lead but you can! (See Rabbit Hole Techniques).
• Watch out for visual activities.
• Use ‘Comfort Zone’ technique.

Functional Developmental Level 3
Two Way Communication (8-14 months)
• Opening and closing of 6-10 circles.
• Key activities: Simple cause and effect games.
• Key Question: Is the child initiating?
• We want to ‘create a monster’ (i.e. child won’t leave you alone!)
• This is the ‘wait’ level. The parent/professional has to wait to see if the child will initiate (i.e. open circles).
• Beginning of understanding routines.
• Beginning of first single words.

Functional Developmental Level 4
Two Way Communication (14-20 months)
• Opening and closing of 10-30 circles.
• Solid 4 = Totally ‘with us’. Continuous flow of interaction.
• Gestural communication along with words. Imitation.
• 50+ words.
• Follows spontaneous 1 step commands: Go, get, give to... 
• Feelings more and more organized.
• Problem solver! Has his/her own ideas.
• ‘Little stories’: ‘Gets’ meaningful sequences.
• Simple pretend: Phone to ear. Bottle to baby’s mouth.

Functional Developmental Level 5
Shared Meanings (18 to 30 months)
• Classic two year old communication.
• 1-2 word phrases.
• What, Where, Who, Actions, Yes/No.
• Not open ended ‘What’, ‘Why’, or When or Pronouns.
• One thematic pretend play with adults.
• Follows 1-2 step commands.
• Greetings emerging.
• Compliance.
• It is not following their lead to follow their lead.

Functional Developmental Level 6
Emotional Thinking (30 to 48 months)
• Talking in sentences.
• ‘Why’. Can recall the immediate past.
• Builds bridges between ideas.
• Identifies own and others’ feelings.
• Recognizes relationship between feeling, behavior and consequences.
• Two thematic play.
• Carries on simple conversations.
• Peer play established.
• Misbehavior as developmental accomplishment.

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PLAY Project Checklist
For Functional Developmental Levels I, II, III

FDL I: Self Regulation and Shared Attention.
- How is your positioning? Are you being with the child near them or on the floor or facing them or following them around the room?
- Are you paying attention to the child’s attention? Where is he/she looking? What is his/her attention focused on?
- Are you paying attention to the child’s true intention? What is he/she interested in right now?
- Are you able to interpret your child’s subtle cues to understand what they want? Are you ‘reading’ them right?
- When your child shows his/her intention are you responding in a supportive way, encouraging your child to do what they want? Can you accept your child right where he/she is at?
- Whose play idea is it? Yours or your child’s?
- Are you using the ‘Rabbit Hole Techniques’?
- Can you define ‘circle’ of communication? What does it mean to ‘open’ a circle? Close a circle? Do you know how to count circles?
- Are you having fun together?

FDL II: Engagement
- Are you playing at the right level? Too high (child not getting it)? Too low (not engaging the child)?
- Can you engage your child by following his/her lead?
- Are you enthusiastic, animated, silly, fun? Using voice, gestures, actions to make it fun?
- Are you in the right sensory mode to engage the child? You might have to change it up (i.e. avoid visually absorbing activities) to get better engagement.
- Are you getting 3-4 circles of communication going? Do you know how to count circles?
- How long can you keep the engagement going by being dramatic, silly, fun, sensitive to their interests (are you sweating yet)?
- Are you having fun together?

FDL III: Two-way Communication
- Are you slowing down your pace and waiting long enough to get responses from your child?
- Are you getting 6-10 circles of communication going?
- Are you ‘thinking circles’ as you play and going for longer chains of interactions?
- Whose opening the first circle? Are you waiting for him or her to initiate?
- Are you using Theme and Variation to be inventive with your play?
- Are you connecting words to routines and fun events? Does he/she understand routines when you refer to them? Does he/she turn to their name?
- Are you seeing any imitation yet?
- Any word-gestures yet? Like signing for ‘more’, waving bye, pointing?
- Are you still having fun together?
1. Please check the four main principles of the PLAY Project:

☐ Let the child do whatever he or she wants
☐ Have fun with people
☐ Teach the child what he needs to know
☐ Play at the right developmental level
☐ Put in the right amount of time i.e. about ½ hour a day
☐ Put in the right amount of time i.e. 2-3 hours per day
☐ Accurately profile the child primarily by language skill level.
☐ Accurately profile the child by comfort zone, sensory motor profile, and functional developmental levels.

2. Please put the Functional Developmental Levels (FDL) in the right order by placing the proper letters by the correct FDL:

___ FDL I  A. Emotional Thinking
___ FDL II  B. Shared Attention and Self-regulation
___ FDL III  C. Complex Two-way Communication
___ FDL IV  D. Engagement
___ FDL V  E. Two-way Communication
___ FDL VI  F. Shared Meanings

3. Circle the best definition of the child’s “Comfort Zone” (CZ)?

A. What the child will do when you ask him/her to do what you want him to do.
B. What the child will do when you let her do whatever she wants to do.
C. What the child does when he or she is excited.
D. When the child is lining up his or her toys.

4. Circle the best definition of Sensory Motor Profile (SMP)?

A. The sensations (sensory) and movement (motor) likes and dislikes of each individual child including how reactive they are to the environment
B. Only those sensations (sensory) and movements (motor) the child *likes* including how reactive they are to the environment.
C. Only the sensations (sensory) and movements (motor) the child *dislikes* including how reactive they are to the environment
D. A and C above
E. None of the above.
5. Which of the following characterize the child’s *sensory-motor profile* (check all that apply):

- Vestibular (movement in space)
- Proprioceptive (feelings of the joints as they move)
- Motor planning and coordination (fine and gross motor coordination)
- Oral motor coordination (chewing, swallowing)
- Taste
- Smell
- Touch (including light i.e. tickling and deep touch i.e. squeezing, pressure)
- Visual
- Sensory reactivity (i.e. over or under-reactive)

6. Please match the *descriptions* with the proper Functional Developmental Level (please put the proper letter next to the related FDL):

   ___ FDL I  A. Child can open 20-30 circles in a continuous flow
   ___ FDL II  B. Pretends the puppet eats different foods
   ___ FDL III C. Asks some ‘why’ questions.
   ___ FDL IV D. Stuck in his own world
   ___ FDL V  E. Can be engaged especially when adult initiates
   ___ FDL VI F. Child is initiating more and more on his/her own

7. Please put the seven steps of the PLAY Project Skill Sequence in the right order (please put the proper letter next to the right step):

   ___ Step 1  A. Follow the child’s lead and cue to increase circles.
   ___ Step 2  B. List PLAY Project principles
   ___ Step 3  C. Assess child’s unique CZ activities, SMP, and FDL
   ___ Step 4  D. List activities
   ___ Step 5  E. Create menu of techniques
   ___ Step 6  F. Adjust, curriculum, methods and techniques
   ___ Step 7  G. Video tape/review interactions
PLAY Project Quiz
For Parents

8. Circle the best definition of ‘Circle of communication’
   A. When the child draws a circle upon request
   B. A back and forth interaction
   C. When the adult tries to get the child’s attention
   D. When the child lines up his trains and the adult notices
   E. C and D
   F. None of the above

True or False

9. One of the best techniques to promote the child’s initiation is ‘expectant waiting’.

10. Another technique that promotes initiation and problem solving is ‘playful obstruction’.

11. ‘Reading the child’s cues’ means that you provide an activity or idea that you think the child will like.

12. Functional developmental levels V and VI emphasize the importance of pretend play.

13. When the child is doing his own thing in his own world that’s called his sensory motor profile.

14. ‘Closing’ a circle of communication happens when the child or adult responds to a social overture.

15. The amount of time—2-3 hours per day—is important because ‘intensity’ is needed to change the nerve connections in the brain.

16. ‘Following the child’s lead’ means offering the child your idea and seeing if he or she joins you.

17. ‘Opening’ a circle of communication occurs when the child or adult responds to a social overture.

18. Children who are ‘solid’ at FDL III can open and/or close 20-30 circles of interaction.

19. To engage the hard to engage child the parents should use ‘The Rabbit Hole’ Techniques.

20. The best activities are those that match the child’s functional developmental profile.
21. To ‘follow the child’s lead’, parents should try to understand the child’s intention, then join the child’s idea.

22. Pretend play with one or two themes is common at functional developmental level III.
23. When a child over-reacts to noises, this is called a comfort zone activity.

24. A key language milestone of functional developmental level IV is the ability to follow the ‘give’ and ‘get’ commands.

25. Children function at only one functional developmental level at a time.
PLAY Project Quiz
For Parents

ANSWERS

1. Please check the four main principles of the PLAY Project:
   - [ ] Let the child do whatever he or she wants
   - [x] Have fun with people
   - [x] Teach the child what he needs to know
   - [x] Play at the right developmental level
   - [ ] Put in the right amount of time i.e. about ½ hour a day
   - [x] Put in the right amount of time i.e. 2-3 hours per day
   - [ ] Accurately profile the child primarily by language skill level.
   - [x] Accurately profile the child by comfort zone, sensory motor profile, and functional developmental levels.

2. Please put the Functional Developmental Levels (FDL) in the right order by placing the proper letters by the correct FDL:
   - B__ FDL I
   - D__ FDL II
   - E__ FDL III
   - C__ FDL IV
   - F__ FDL V
   - A__ FDL VI

   A. Emotional Thinking
   B. Shared Attention and Self-regulation
   C. Complex Two-way Communication
   D. Engagement
   E. Two-way Communication
   F. Shared Meanings

3. Circle the best definition of the child’s “Comfort Zone” (CZ)?
   Answer: B

4. Circle the best definition of Sensory Motor Profile (SMP)?
   Answer: A

5. Which of the following characterize the child’s sensory-motor profile (check all that apply)?
   Answer: All

6. Please match the descriptions with the proper Functional Developmental Level (please put the proper letter next to the related FDL):
   - D__ FDL I
   - E__ FDL II
   - F__ FDL III
   - A__ FDL IV
   - B__ FDL V
   - C__ FDL VI

   A. Child can open 20-30 circles in a continuous flow
   B. Pretends the puppet eats different foods
   C. Asks some ‘why’ questions.
   D. Stuck in his own world
   E. Can be engaged especially when adult initiates
   F. Child is initiating more and more on his/her own
PLAY Project Quiz
For Parents

ANSWERS

7. Please put the seven steps of the PLAY Project Skill Sequence in the right order (please put the proper letter next to the right step):
   B__ Step 1  A. Follow the child’s lead and cue to increase circles.
   C__ Step 2  B. List PLAY Project principles
   D__ Step 3  C. Assess child’s unique CZ activities, SMP, and FDL
   A__ Step 4  D. List activities
   E__ Step 5  E. Create menu of techniques
   G__ Step 6  F. Adjust, curriculum, methods and techniques
   F__ Step 7  G. Video tape review interactions

8. Circle the best definition of ‘Circle of communication’
   Answer: B. A back and forth interaction

   True or False (Note: The correct answers are given for false items.)

9. True: One of the best techniques to promote the child’s initiation is ‘expectant waiting’.

10. True: Another technique that promotes initiation and problem solving is ‘playful obstruction’.

11. False: ‘Reading the child’s cues’ means that you provide an activity or idea that you think the child will like. Answer: ‘Cues are child behaviors that help you understand the child’s intentions.

12. True: Functional developmental levels V and VI emphasize the importance of pretend play.

13. False: When the child is doing his own thing in his own world that’s called his sensory motor profile. Answer: Comfort Zone Activities

14. True: Closing a circle of communication happens when the child or adult responds to a social overture.

15. True: The amount of time—2-3 hours per day—is important because ‘intensity’ is needed to change the nerve connections in the brain.
PLAY Project Quiz
For Parents

ANSWERS

16. False: ‘Following the child’s lead’ means offering the child your idea and seeing if he or she joins you. Answer: The child’s lead is the child’s idea, not the adults idea

17. False: ‘Opening’ a circle of communication occurs when the child or adult responds to a social overture. Answer: Opening a circle means initiating an interaction not responding.

18. False: Children who are ‘solid’ at FDL III can open and/or close 20-30 circles of interaction. Answer: Children at FDL can open 6-10 circles

19. True: To engage the hard to engage child the parents should use ‘The Rabbit Hole’ Techniques.

20. True: The best activities are those that match the child’s functional developmental profile.

21. True: To ‘follow the child’s lead’, parents should try to understand the child’s intention, then join the child’s idea.

22. False: Pretend play with one or two themes is common at functional developmental level III. Answer: Pretend play with themes happens at FDLs V and VI

23. False: When a child over-reacts to noises, this is called a comfort zone activity. Answer: Reaction to noise is part of the sensory motor profile

24. True: A key language milestone of functional developmental level IV is the ability to follow the ‘give’ and ‘get’ commands.

25. False: Children function at only one functional developmental level at a time. Answer: Children function at multiple FDLs thought there is usually one FDL that is the most important to helping the child make progress.
STATEMENT REGARDING CONFIDENTIAL INFORMATION

As a visitor to The P.L.A.Y. Project office and/or the Ann Arbor Center for Developmental & Behavioral Pediatrics, I understand that I may have access to confidential data or information pertaining to a patient, family member, physician, therapist, hospital or other individuals, providers or institutions. For example, I may have an opportunity to attend sessions with children and families, to review videotapes, or to review medical information in the clinical record. Any such information received must be held in strict confidence and not disclosed.

It is my responsibility to maintain the confidentiality of this information at all times in accordance with the provisions of any applicable state and federal statutes, including but not limited to Title 42 Code of Federal Regulations (42 CFR 480) and the Health Insurance Portability and Accountability Act (HIPAA) (42 CFR 160 and 162).

I understand that I may not use such confidential data for any purposes other than for training under Dr. Richard Solomon’s direct supervision or for the express purposes for which disclosure of such information is intended. Such confidential information may not be used for personal or other business purposes without Dr. Solomon’s prior written approval.

This document signifies that I have been made aware of these requirements and do understand the need for me to hold such confidential data or information at all times.

If you have questions regarding confidential information, please contact Dr. Richard Solomon.

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DATE: __________________________

1601 Briarwood Circle, Suite 500  •  Ann Arbor, Michigan 48108
Phone (734) 997-9088  •  Fax (734) 997-9211  •  Email: office@aacenter.org  •  Web: www.playproject.org