

# Play as a Developmental Domain: Description, Assessment, and Intervention

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# Agenda

- Introductions/Assessment of Participant Perspectives
- The Research Program
  - Problems and assumptions
- Theories and Research
  - Descriptive studies; relationships between and among play/language/social-emotional development
- Translation to practice of play research
  - Assessment of play, with examples
  - Interventions in play
- Practice in examining play activities/developing goals
- Where do we go from here?

# Background to the Problem

Young children with developmental delays and disabilities often have:

- Delays in language/communication
- Delays in social engagement and coordination
- Delays in cognitive development

# Background to the Problem

As a result of such delays, programming centers on:

- Language goals
- Social interaction goals
- Cognitive goals
- BUT --
  - These goals are often implemented in a play context given emphasis on interventions in natural contexts

# The Primary Problem

Young children with developmental delays and disabilities *have delays in play too!*

- Their play is characterized as limited in frequency, variety, and symbolic quality
  - *They might not know how to play*
  - *May need direct instruction in **LEARNING TO PLAY***

# The Secondary Problem

- These limitations in play compromise the implementation of language goals and social goals in play contexts (i.e., natural contexts)
  - *Need to think about how play is used in ECSE/EI*
    - How used to support goals in language
    - How used to support goals in social interaction
    - How used to support goals in cognitive development
  - *How play is used in play-based assessment and intervention*

# THE CLAIM

- If children do not fully know about:
  - The particular properties of objects
  - The relationships of objects to people and other objects
  - The symbolic quality of objects
    - -----> *they will not be able to attend fully to the language they hear or the social activities they are asked to engage in*
- We need to attend to the play itself

# What is Play?

## (Theoretical Perspectives)

- “Happy *display of known actions*” (Piaget, 1962, p. 93)
- “The *child’s work*” (Montessori, 1967, p.180)
- “Actions in play display what the child already knows (i.e. *expression*)... but also display what the child is currently thinking about in efforts to make sense (i.e. *interpretation*) of ongoing events for advancing knowledge” (Lifter & Bloom, 1998, p.164).

# Assumptions about Play in PROJECT PLAY Research

- Play is important in development
  - Children spend a lot of time playing; Play is prosocial in that play is what young children do
- Play contributes to:
  - Expression in development (both saying and doing)
  - Learning (i.e., interpretation) in development
- Play can be used for:
  - Assessment activities (assess what child knows)
  - Intervention activities (help children learn new things)

# Basic Research:

## The Evidence for Play as a Domain

- Descriptive studies of children's play
  - Longitudinal and Cross sectional studies
  - Yielded descriptions of
    - what play is
    - how it develops
    - correspondences between developments in play and developments in other domains
  - Yielded developmental sequences of play

# Classic Descriptive Studies: Categories, Developmental Sequences

<i>Belsky &amp; Most (1981)</i>	<i>Fenson et al (1976)</i>	<i>Lifter &amp; Bloom (1989)</i>	<i>Nicolich (1977) McCune '95</i>	<i>Watson &amp; Fisher (1977)</i>
Simple manipulation		Separations		
Functional relational	Rel simple/ Rel accom	Given; Imposed gen'l		
Enactive naming			Presymbolic	
Pretend self	Symbolic acts		Autosymbolic	Self as agent
Pretend other	Symbolic acts	Imposed specific	Single scheme symbolic	Passive other agent
Substitution				Passive subs

# Implications of Descriptive Studies

- Evidence for *Play as a Developmental Domain*
- Provided
  - Descriptions of play
  - Evidence of systematic changes in play as a function of development
  - Evidence of systematic correspondences between play and developments in language (e.g., Lifter & Bloom, 1989; Nicolich, 1977 (McCune, 1995)).
  - Evidence of systematic relationships between play and social engagement (Pierce-Jordan & Lifter, 2005).

# Examples of Relationships between Play and Language

- Prelinguistic period
  - First words
  - Vocabulary spurt
  - Early Sentences
- Joey: 8 mos, 2 wks
  - Joey: 10 mos, 2 wks
  - Joey: 18 mos
  - Joey: 27 mos

# Joey at 8 mos, 2 weeks (PreLg)

## Play in Prelinguistic Period

- Treats all objects alike
  - Mouthing, banging
- Acts on one object at a time
  - Takes apart configurations

# Correspondences: Prelinguistic Period

## Play

- Explore, take hold of objects, move from place to place
  - Treat all objects alike
    - Mouthing, banging
  - Take toys apart
  - -> Developing knowledge of objects in relation to the self

## Language

- Prespeech sounds
  - /aaa/

## Social

- Reciprocal gaze
- Early “giving”
- Mother scaffolds
- Early social referencing
- Basic emotions: surprise
- Attachment

# Joey at 10 mos, 2 weeks (FW)

## Play at Transition to First Words

- Works at constructing relationships *between* objects  
--> objects as separate entities

# Transition to First Words

## Play

- Creates general relationships between objects
  - Perceptually based
    - Puzzle piece into frame, nesting cup into another
  - General properties
    - Objects in/out containers
  - -> Developing knowledge of objects in relationship to other objects & people
  - -> knowledge of objects as separate entities;
  - -> underlies object perm., cause-effect)

## Language

- First words (emergence of first conventional words)
  - Mean 13.8m; Range 10-18
- Code meanings evident in context
  - (relations between objects, object permanence, loc)
  - /uhoh/, /this/, /gone/
- Joint attention emerging

## Social/emotional

- Increased self-awareness

# Joey at 18 mos (VS)

## Play at Transition to Vocabulary Spurt

- Creates relationships between objects based on:
  - Physical properties
  - Conventional properties
- Increases in mental representation

# Transition to the Vocabulary Spurt

## Play

- Ability to create specific relationships based on physical & conventional properties of objects
  - Stacks nesting cups
  - Feeds doll w/ spoon
  - Uses tool to fix car
- See-then-act quality
- -> Developing mental representations of properties/relationships

## Language

(sharp increase in the number of new words used)

- Mean 19.4m, Range 13-25
- Code meanings anticipated in context
  - /baby/, as prepares to feed doll with spoon

## Social/emotional

- Self-regulation improves
- Increased sense of self as separate

# Joey at 27 mos (Sentences)

## Play at Transition to Simple Sentences

- Links activities together representing cultural practices
- Planned sequences
  - e.g., multischeme sequences

# Play During Early Sentences

## Play

- Link activities into planned events that represent cultural practices
- Develops from “see-then-act” to planned activities
  - Multischeme sequences (Sees baby, cup, blanket --> picks up doll, cradles it, gives it a drink, then lays it on blanket to sleep)
  - Increases in mental representation

## Language

- Elaboration of form of utterances
  - From single words and SSWUs to simple sentences
- Announcements of actions
  - /baby wants a drink/, then enacts the scheme
  - /this my baby/night night baby/

## Social/emotional

- Self-regulation improves
- Changes in caregiver-child interactions
- Emerging acknowledgment of needs of others

# Implications for Young Children with Developmental Delays

- Assessment in play
  - Observe and quantify play activities
- Interventions in play: provide contexts for
  - Increasing child's knowledge about objects, people, events
  - Hearing language mapped onto emerging meanings/knowledge
  - Engaging in caregiver-child joint attention

# Translation to Practice: Theory --> Assessment

## Cognitive/developmental theory

- Contributes theory of description/explanation for development
- “Silent” on intervention
- Underlies the field of Early Childhood Education (ECE)
  - --> “Hands off” in play

## Applied Behavior Analysis (ABA)

- Contributes behavior assessment to develop and operationalize a curriculum of play
- Contributes procedures of intervention
- Underlies the fields of Early Childhood Special Education (ECSE) and Early Intervention (EI)
  - --> Intervene in play

# Developmental Play Assessment (DPA): (Lifter, 2000)

## Integration of Theories, Research

- Framed within the cognitive/developmental perspective
  - Based on many descriptive studies of children's play: Children without disabilities/ Children with disabilities
- Use of Lifter & Bloom's (1989) results to:
  - form backbone of the *developmental sequence* of the play categories
  - Support premise that *children of different developmental levels play differently with the same toys*

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# Developmental Play Assessment (DPA)

## (Integration of Theories, Research)

- Use of other descriptive studies to:
  - inform the remaining categories
    - Categories earlier and later in the sequence
- Use of behavioral assessment to:
  - operationalize the categories
    - Emergence
    - Mastery
  - identify progress through the sequence

**Table 1. Selection from DPA Sequence; Definitions of Play Categories**

Level	Categories	Definitions
II	<i>Discriminative Actions</i>	Differentiates among objects, preserving their physical or conventional characteristics (rolls round objects)
III	<i>Presentation Combinations</i>	Re-creates combinations of objects according to their presentation configuration (puts puzzle pieces into puzzle)
	<i>General Combinations</i>	Creates combinations of objects that results in simple, non-specific configurations such as container/contained relationships (puts beads and puzzle pieces into a cup)
	<i>Pretend Self</i>	Relates objects the self, indicating a pretend quality to the action (brings empty cup to mouth to drink)
IV	<i>Specific Physical</i>	Preserves unique physical characteristics of objects in configuration (strings beads)
V	<i>Child as Agent</i>	Extends familiar actions to doll figures, with child as the agent of the activity (extends cup to doll's mouth)
	<i>Specific Conventional</i>	Preserves the unique conventional characteristics of objects in the configuration ("fixes" car with wrench)
VI	<i>Single-scheme sequences</i>	Extends same familiar action to two or more figures (extends cup to doll, to stuffed bear, to interactant)
	<i>Substitutions</i>	Uses one object to stand in place for another (puts bowl on head for hat)

# Advantages of the DPA

- Based on a sample of naturally occurring behaviors
- Does not require language, but the ability of the child to do things with objects
- Directly links assessment to intervention
- Is a *curriculum-based assessment*
  - Derived from *developmental sequences in play*, with this sequence as the curriculum

# DPA Procedures

- Observation of 30-minute sample of naturally occurring behaviors
- Observations are examined for occurrence, frequency, and variety of spontaneous play behaviors
  - Data are reorganized into categories of play activities
  - Frequency of activities/category are counted
  - Number of different examples of the category for each category are counted to determine variety
  - Developmental status of each category is determined

# DPA Procedures

- Materials involved: 4 sets of toys
- Administration: 30-minute sample of spontaneous behaviors, with a familiar caregiver in a familiar setting
- Caregiver comments on play, but does not direct or prompt
- Observations are video-recorded or hand-recorded
- *Observations are subsequently coded into categories, with determination of frequency and variety of each category*

# Determination of Developmental Status

- Mastery
  - Minimum of 4 exemplars of category,
  - Minimum frequency of 10 activities
- Emergence
  - Minimum of 2 exemplars of category,
  - Minimum frequency of 4
- Absence
  - Anything less

# Case: 21-month Toddler w/ Language Delays (Frequency = 119 activities)

	Exemplars	Frequency	Status	Targets
Present.	8	23	M	
General	7	24	M	
Pret.self	6	14	M	
Spec.Phy	7	24	M	
ChildAg	6	13	M	
SpecCon	3	19	E	<---
Sgl Sch	2	2	A	<---
Subs	0	0	A	

## Analysis of Play: 21-month Toddler w/ Language Delays

- Strong profile in the development of play
  - Mastery of many categories of play
- Developments in play apparently NOT
  - Dependent on developments in language
  - Impacted by expressive delays in language
  - --> DPA is useful for assessing developments in play (i.e., knowledge) independently of language

# Case

## Emma: 27-month toddler w/ Down syndrome

### Play Activities:

#### Segment 1

- Dumping objects out of container
- Putting objects back in container

#### Segment 2:

- Taking apart and stacking cups

#### Segment 3:

- Feeding dolls with spoon

## Emma: 27-month Toddler with Down Syndrome

Samples of Emma's play activities observed  
with DPA:

- Dumping objects out of container
- Putting objects back into container
- Taking apart and stacking cups
- Putting figure in train car and rolling train car
- Feeding self and dolls with spoon

## DPA results for Emma:

27-month Toddler with Down Syndrome  
(Frequency = 50 activities)

	Exemplars	Frequency	Status	Targets
Present.	4	11	M	
General	3	9	E	
Pret.self	3	15	E	<---
Spec.Phy	2	6	E	<---
ChildAg	2	5	E	<---
SpecCon	1	4	A	
Sgl Sch	0	0	A	
Subs	0	0	A	

## Analysis of Play: Emma - Toddler with Down Syndrome

- Fewer activities than child with language delays (about 50% less)
- Weaker profile in the development of play
  - Mastery of only one category of play
- Developments in play apparently NOT
  - Dependent on developments in language
- Delays in play MAY BE
  - impacted somewhat by delays in motor developments
- Delays in play are result of delays in development of knowledge about objects, people, and events

# Goals for Emma

## Learning about:

- Relationships that exploit physical properties (i.e., trial-and-error)
  - *Specific physical relationships*
- Pretend activities in relation to the self
  - *Pretend self activities*
- Pretend activities in relation to others
  - *Child-as-Agent activities*

# Case

## Mac: 28-month Toddler w/ PDD

### Segment 1

- Takes top off box
- Tries to put top back on box
- Picks up sticks and hits them together

### Segment 2:

- Takes blocks out of box

### Segment 3:

- Labels doll /dah/
- Moves doll closer
- Touches doll's hair

### Segment 4:

- Swishes toys in lap

## Mac: 28-month Toddler with PDD

- Samples of play activities
- Takes top off box; tries to put back on
- Picks up sticks and hits together
- Takes blocks out of box
- Moves doll closer (/dah/)
- “Ruffles” blocks in lap

# DPA results for Mac: 28 month toddler w/ PDD (n = 53 activities)

	Variety	Freq.	Status	Targets
Present.	2	18	E	<--
General	6	13	M	?
Pret.self	2	7	E	
Spec.Phy	1	12	A	<--
ChildAg	2	3	A	
SpecCon	--	--	--	

## Mac's Play Profile: 28 month toddler w/ PDD

- Fewer activities than child with language delays (about 50% less)
- Weaker profile in the development of play
  - Mastery of only one category of play
- Developments in play apparently NOT
  - Dependent on developments in language
  - Impacted by delays in motor developments
- Delays in play a result of delays in development of knowledge about objects, people, and events

# Goals for Mac

## Learning about:

- Particular properties of individual objects
  - Discriminative actions
- Simple relationships between objects
  - Perceptually based relationships
- Relationships that exploit physical properties (i.e., trial-and-error)
  - Specific physical relationships

Typical PreK: 4 yrs., 2 mos.  
(Total frequency = 136 activities)

	Exemplars	Frequency	Status	Targets?
Present.*	1	5	[A]	
General*	3	4	[E]	
Spec.Phy	13	28	M	
ChildAg	13	31	M	
SpecCon	6	30	M	
Subs	9	14	M	
Doll Ag	8	15	M	
MultiSch	4	9	E	

# PreK Child w/ Delays: 4 yrs, 6m

(Total frequency = 103 activities)

	Exemplars	Frequency	Status	Targets?
Present.	6	36	M	
General*	4	7	[E]	
Pret.self*	4	7	[E]	
Spec.Phy	4	17	M	
ChildAg	9	17	M	
SpecCon	7	9	E	<---
Sgl Sch	1	2	A	<---
Subs	5	8	E	<---

# PreK Child w/ Autism: 4 yrs, 6 m

(Frequency = 101 activities)

	Exemplars	Frequency	Status	Targets?
Discrim	7	8	[E]	
Present.	7	50	M	
General	3	3	E	<---
Pret.self	--	--	A	<---
Spec.Phy	1 (6)	40	A	<---
ChildAg	--	--	A	
SpecCon	--	--	--	

## Group Activity 2

- Using the observations you noted in the opening exercise for the play activities of child you know
  - Please organize those activities into the DPA categories of play

# Translation to Practice: Interventions in Play

- Identification of objectives for intervention
  - Identification of objectives at the emerging level --> the leading edge of development/learning
  - *Developmentally Specific (DevSp) objectives*
- Use of child-directed teaching procedures
  - Follow child's lead (standard child-initiated)
  - We add -- targeting objectives at the *child's leading edge of learning*, yielding developmentally responsive objectives

# Translation to Practice:

## Interventions in Play

- Child-directed teaching --> targeting developmentally specific (DevSp) activities
- Example: Child picks up, looks at (i.e., attends to) dump truck, guide child as follows:
  - If *Discriminative*, roll truck
  - If *General*, put tools in dump truck, then out and into some other container
  - If *Specific Physical*, roll truck on a ramp or track
  - If *Child-as-Agent*, give figures a ride in the dumper portion
  - If *Specific Conventional*, use the wrench to fix the wheels; use the screwdriver to fix the dumper part

# Intervention Strategies

- The service provider always describes the ongoing actions in simple language (to map the emerging meanings)
  - Describes the objects and relationships between objects the child is in the process of learning
    - /Hammer, you have the hammer/, as child picks up hammer
    - /Zoom! There goes the truck/, as child rolls truck down ramp
- The linguistic mapping of the activities also provides social attention

# Where do we go from here?

- Assessment of play?
  - Recording sample of play:
    - Videotape; hand record; use checklist;
- Implementation of play goals?
  - Identify sets of toys?
  - Identify/list matrix of categories/activities?
- Kinds of training needed?
  - Workshops at sites? On-line training?

# Discussion Questions

- Play as a developmental domain?
- Direct instruction in play?
- Considering a child's progress in play in relationship to goals in other domains?
- Implications of each?

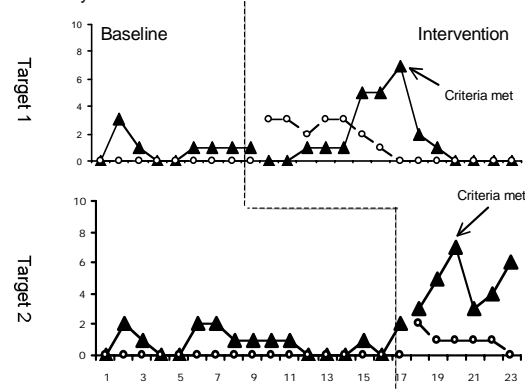
# Evidence to Support Interventions in Play

- Lifter, Ellis, Cannon & Anderson (2005)
  - Modified multiple baseline design; 3 preschool age children with PDD
  - Implemented by home-based therapists in homes
  - Activities from three adjacent categories taught:
    - Emergent and “next step” categories
  - Three activities taught at a time

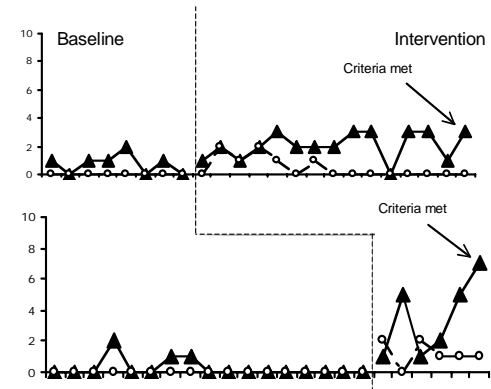
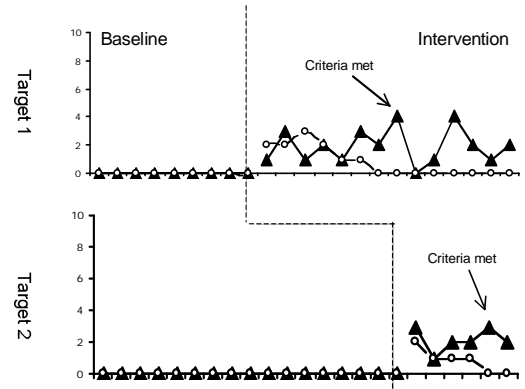
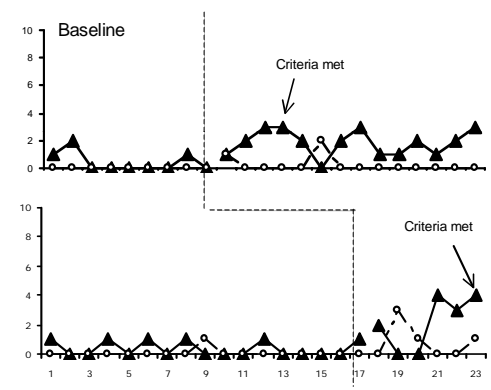
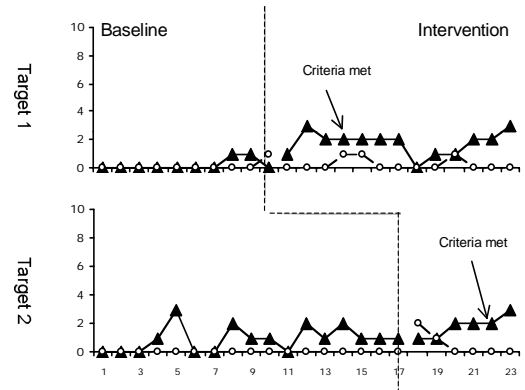
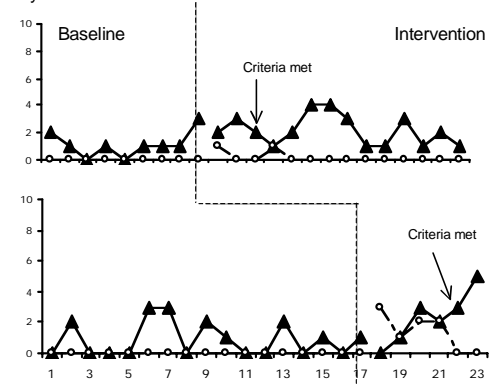
# Method: Intervention Study

- Play categories are targeted for intervention (i.e., direct instruction) based on:
  - Developmental Specificity (DevSp) derived from the DPA
  - DevSp play activities are from play categories that the child is ready to learn
  - DevSp categories are operationalized as:
    - Categories at the “emergent” level
    - Categories at the “absent but next step” level

Pretend Self  
Toy Set 1



Child-as-Agent  
Toy Set 1



# Results: Intervention Study

- Results
  - Baseline observations corresponded to DPA results
  - Children reached acquisition for 85% of 40 play activities generated from “emerging” categories
  - Children reached acquisition for 81% of the 16 play activities generated from “next step” categories

## Results Stage 1: Implications for *Interventions in Play*

- Increased discrimination among play categories in the selection of target activities
  - *operationalized as DevSp categories* -- appears to affect how easily children learn the activities
- Children with delays in play benefit from *direction instruction* in play

# Descriptive Studies - Stage 2: Additional Evidence for Play as a Developmental Domain

- Sandra Pierce-Jordan, Ph.D.
  - Dissertation in School Psychology, Northeastern University
  - Question: Relationship between play and social interaction
  - Observed preschoolers with and without PDD
  - Published: Pierce-Jordan & Lifter (2005)

# Problems

- **Interventions**: Because of delays in play
  - play activities that are too complex may interfere with social goals
- **Definitions**: Social behaviors often defined by categories of social play
  - yet measures are confounded
  - need to explore domains separately
- **Methods**: Interval/frequency documentation systems may not capture all behaviors
  - Need for more sensitive measures

# Method: Descriptive Study

## ● Sample

- 21 preschoolers with & w/o PDD in integrated playgroups
  - 12 with PDD
  - 9 without

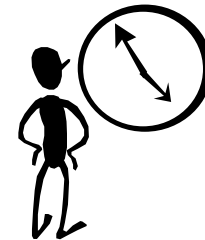


## ● Measures

- Social Behavior Scale: generated from literature
- DPA Behavior Scale: adaptation of DPA; generated from lit

## ● Data Analysis Strategies

- Analyzed videotapes
- Identified behaviors
- Merged data/log-linear analysis



# Independent Measures of Social Interaction and Play

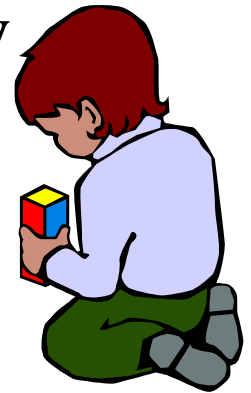
## Social Behavior Scale

- ✓ Solitary
- ✓ Onlooking
- ✓ Simple Social
- ✓ Complex Social



## DPA Behavior Scale

- ✓ Unoccupied
- ✓ Object-focus
- ✓ Simple Play
- ✓ Complex Play



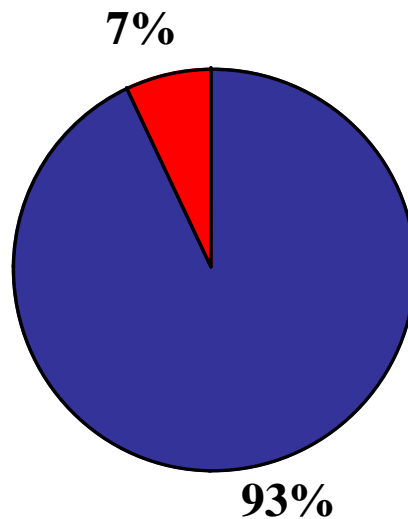
# Event Frequency & Duration of Complex Behavior

	<b>Complex Social</b>		<b>Complex Play</b>	
<b>Subjects</b>	Frequency <sup>a</sup>	Duration <sup>b</sup>	Frequency	Duration
<b>PDD</b>	<b>8</b> ( <i>Rg 3-10</i> )	<b>4</b> ( <i>Rg 1-9</i> )	<b>9</b> ( <i>Rg 3-12</i> )	<b>5</b> ( <i>Rg 1-11</i> )
<b>w/o PDD</b>	<b>7</b> ( <i>Rg 4-16</i> )	<b>9</b> ( <i>Rg 1-22</i> )	<b>8</b> ( <i>Rg 5-13</i> )	<b>6</b> ( <i>Rg 1-14</i> )

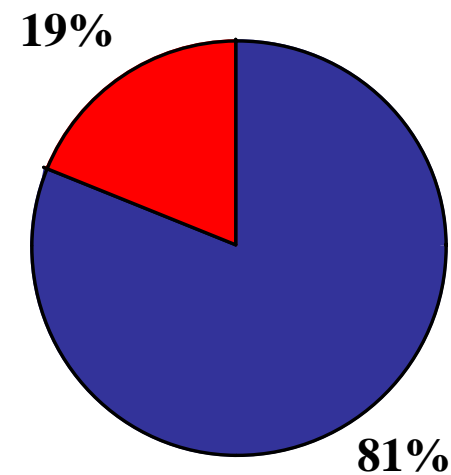
<sup>a</sup>Frequency = average frequency of episodes of complex behavior during 5-minute session.

<sup>b</sup>Duration = average duration in seconds of each episode of complex behavior during 5-minute session.

# Presence of Social Behavior When Engaged in Complex Play



Average of Children with PDD



Average of Children w/o PDD

## Results Stage 2:

# Implications for *Using Play*

- Evidence for play as a developmental domain
  - Systematic relationships with developments in other domains
  - “Costs” associated with using play in the service of social interaction goals
- Implications for intervention
  - When targeting social behaviors, use play at the mastered level
  - When targeting new play activities, do not require social engagement

# Limitations and New Directions

- Foregoing studies based on:
  - *What* children did with toys when they played
  - Whether or not engaged in social interactions
- Develop new descriptive studies:
  - *How* children play:
  - Engagement; attention; self-regulation
- Develop new intervention studies
  - Examine effectiveness of social interventions as a function of children's progress in play
  - Examine impact of learning to play on developments in language

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