Assessing Young Children's Play: From Research to Assessment and to Intervention

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Ohio School Psychology Association
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With appreciation to
Haley Medeiros, MS
Robert Antonelli, MS

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Introductions

Presenter: Karin Lifter, PhD
- School Psychology Core Faculty
- Director, Interdisciplinary Program in Early Intervention
- Research Interests: descriptive/intervention studies of the play, language, social development of young children with and without delays

Participants
- All school psychologists?
- What settings do you work in?
- What do you want to learn from the session?

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PROJECT PLAY IES Statement

Profound appreciation is extended to the National Center for Special Education Research (NCSER) of the U. S. Department of Education, and in particular
- Joan McLaughlin, Former Commissioner
- Amy Sussman
- Kristen Rhoads

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PROJECT PLAY IES Statement

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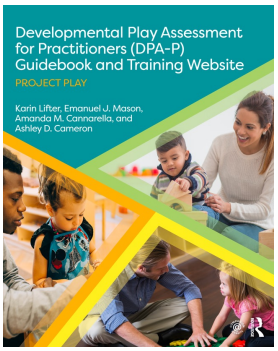

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Online Training Program

14 lessons, 1 practice, & 1 final evaluation

Each lesson contains:
Video
Text
Section quizzes
Final quiz

Available on all platforms

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Overview of Presentation

Introduction	• Importance of play • Research on play
Project Play	• Focused on assessment of play
Results	• Children Developing Typically (TD) • Children Developing with Delays (DD) ○ Children with ASD, Down syndrome, other delays
Translation to Practice	• Assessment of children's progress in play • Targeting/Implementing intervention goals • Communicating with parents/caregivers

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Privacy Specifications

- I will be showing videotaped segments of children and their caregivers, as part of our research project
- I ask that you do not take pictures of these recordings, due to the content involved and that the children and caregivers constitute a vulnerable population

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Objectives

- Learn similarities and differences in play development
  - between TD children and those developing with delays
- Apply descriptive categories of play
  - through case examples
- Become familiar with the play assessment system and how SPs can link results to data-based intervention
  - through analysis of case examples

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Major Take Aways

- Play matters
  - Play is important in development
- Play develops
  - Need to identify what the child knows to set intervention objectives
- Play more complex than global categories (e.g., relational, functional, pretend/symbolic)
  - Need more specific categories for description/assessment/intervention

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American Academy of Pediatricians

The Power of Play: A pediatric role in enhancing development in young children

- Yogman, Garner, Hutchinson, Hirsh-Pasek, & Golinkoff (*Pediatrics, 2018*)

Play entails *active engagement*

- enhances brain structure and function
- promotes executive function
  - Cognitive flexibility; inhibitory control; working memory
  - **Sustained attention**
- can be used to counteract environment stressors
- is fundamentally important for learning in the 21st century:
  - problem solving, collaboration, and creativity

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Play Examples

VIDEOS OF 42-MONTH-OLD CHILDREN

TO ILLUSTRATE VARIATIONS IN PLAY

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Green Set

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Questions about Play Sample?

- How would you describe this child's play?
  - Is he engaged?
  - Does he show varied types of play activities?"
- Do you see children play like this at your school?

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Questions about Play Sample?

- How would you describe this child's play?
- Does this remind you of any children you work with?
- What differences do you see in this play sample from the prior video?
  - Imagination, level of engagement, etc.

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Questions about Play Sample?

- How would you describe this child's play?
- Does this child's play remind you of any children you work with?
- What similarities or differences do you see in this play sample from the last 2?

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Definition of Play in Project Play

Play "consists of spontaneous, naturally occurring activities with objects that engage attention & interest" (Lifter & Bloom, 1998)

In play, children express what they know and what they are thinking about

Activities with objects: Object Play

- Not social or cooperative play
- Not play on the playground
- Not rough and tumble play

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Importance of Play

- ***Through play with objects***, children develop knowledge about:
  - Objects, people, and events
  - Relationships among them
- This knowledge contributes to:
  - What children say
  - What children can do with caregivers and peers
- Play supports social inclusion

Learning to play as a fundamental right!

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The Problem

- IDEA (2004) regarding children with disabilities served through EI/ECSE
  - Focused on 5 domains of concern
    - Language, cognition, socio-emotional, motor, and self-help skills
  - The law is silent on play

But children with delays often have delays in play too!

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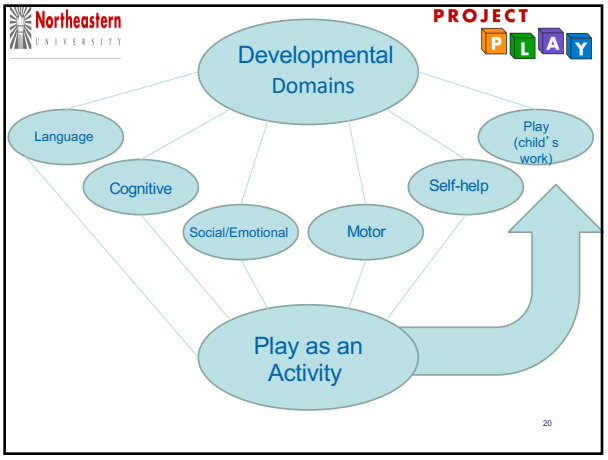

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Central Questions

What we want to know about

- Play of children with and without delays

How can we learn about it?

- Need to review literature and generate new research

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Limitations in Play Research

- Limited contemporary research on play, older studies based in theory rather than empirical findings
- Delay groups vary widely, focus largely on ASD
- Age spans
  - Not covering full age span of early childhood
  - Small sample sizes
  - Control groups v. IQ matching
- Definitions of play and categorizations vary
  - Often global: sensorimotor, functional, symbolic
  - Confounded with social components: e.g., parallel play
- Clinical assessment of delay type varies

We concluded there is a need for new studies on play for children with and without delays

Belsky & Most, 1981; Campbell et al., 2016; Fanning et al., 2021; Nicolich, 1977; Thiemann-Bourque et al., 2012; 2019

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Project Play: Goals

- Describe developments in play from 8 months to 60 months &
- Validate the Developmental Play Assessment (DPA) & create an easy-to-use version for practitioners (DPA-P)
- Develop an online training program to expand accessibility
- Use the DPA-P to: identify play intervention goals & use play activities to support goals in other domains

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Summary of Data Collection

Administer Developmental Play Assessment (DPA-R, Research Edition: Lifter, 2000)

- Collect and code 30-minute observations of child's spontaneous play behaviors with a familiar caregiver in a familiar setting
- Videorecord the play across 4 groups of toys, randomly presented

Gather family demographics and activities

- Sample: 289 TD children, 203 children with delays
- Developmental interview
- Medical and developmental history

Administer standardized assessments

- BDI-2 Screening Test
- Vineland-II Rating Form
- K-SEALS at 60 months (Kindergarten readiness)

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Northeastern UNIVERSITY PROJECT PLAY

Pictures of Toys Used in the Observations

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Northeastern UNIVERSITY PROJECT PLAY

Green Set

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Northeastern UNIVERSITY PROJECT PLAY

Pink Set

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Northeastern UNIVERSITY PROJECT PLAY

Black Set

28

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Northeastern UNIVERSITY PROJECT PLAY

Orange Set

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Northeastern UNIVERSITY PROJECT PLAY

Table 1. Background TD Children

	White		Black		Asian		Latino		Mixed		Total
	n	(p)	n	(p)	n	(p)	n	(p)	n	(p)	n
8 months	22	(.59)	7	(.19)	4	(.11)	1	(.03)	3	(.08)	37
12 months	26	(.72)	2	(.06)	2	(.06)	2	(.06)	4	(.11)	36
18 months	28	(.67)	2	(.05)	2	(.05)	1	(.02)	9	(.21)	42
24 months	19	(.73)	1	(.04)	1	(.04)	1	(.04)	4	(.15)	26
30 months	22	(.81)	1	(.04)	1	(.04)	0	(0.0)	3	(.11)	27
36 months	18	(.75)	0	(0.0)	2	(.08)	2	(.08)	2	(.08)	24
42 months	17	(.65)	2	(.08)	1	(.04)	1	(.04)	5	(.19)	26
48 months	20	(.77)	2	(.08)	2	(.08)	1	(.04)	1	(.04)	26
54 months	19	(.90)	1	(.05)	0	(0.0)	0	(0.0)	1	(.05)	21
60 months	12	(.50)	0	(0.0)	5	(.21)	0	(0.0)	7	(.29)	24
Totals	203	(.70)	18	(.06)	20	(.07)	9	(.03)	39	(.13)	289

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Background Information

	White	Black	Asian	Latino	Multiracial	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n
8 months	3 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3
12 months	18 (78%)	0 (0%)	4 (17%)	0 (0%)	1 (4%)	23
18 months	8 (42%)	2 (11%)	3 (16%)	2 (11%)	4 (21%)	19
24 months	14 (58%)	2 (8%)	3 (13%)	0 (0%)	5 (21%)	24
30 months	16 (55%)	2 (7%)	6 (21%)	2 (7%)	3 (10%)	29
36 months	17 (52%)	4 (12%)	7 (21%)	1 (3%)	4 (12%)	33
42 months	8 (44%)	3 (17%)	1 (6%)	3 (17%)	3 (17%)	18
48 months	9 (56%)	2 (13%)	1 (6%)	1 (6%)	3 (19%)	16
54 months	8 (44%)	3 (17%)	3 (17%)	3 (17%)	1 (6%)	18
60 months	12 (60%)	3 (15%)	2 (10%)	2 (10%)	1 (5%)	20
Totals	113 (64%)	21 (8%)	30 (10%)	14 (5%)	25 (13%)	203

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Children with Delays

	Autism	Down Syndrome	Premature	Language	Motor	Social/ Emot'l	Multiple Domains	Dev'l Delay	Total
8 months	0	1	0	0	1	0	1	0	3
12 months	0	2	3	1	6	0	6	5	23
18 months	2	2	2	5	1	0	5	2	19
24 months	3	3	0	12	1	0	4	1	24
30 months	4	4	1	9	1	0	8	2	29
36 months	3	4	1	14	4	1	5	1	33
42 months	7	5	0	1	1	2	2	0	18
48 months	5	3	0	4	1	0	1	2	16
54 months	8	1	0	4	0	0	4	1	18
60 months	6	2	0	5	0	0	4	3	20
Total (%)	38 (19%)	27 (13%)	7 (3%)	55 (27%)	16 (8%)	3 (1%)	40 (20%)	17 (8%)	203

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Coding Play

Each activity (i.e., *child doing something with a toy beyond rotating in hands*) coded into qualitatively different categories

For example --

- simple activities on objects
- creating relationships between objects
- representing conventional activities
- linking activities into sequences
- embedding substitutions in activities
- attributing animacy to figures

Represent qualitatively different activities

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DPA Sample Categories

Category	Definition
Indiscriminate Activities	**Child acts on one or more objects in ways that are not particular to the characteristics of the objects.**
Discriminative Activities	Child acts on single objects according to their particular characteristics.
Presentation Combinations	**Child puts objects together as they were presented to the child.**
General Combinations	**Child creates new configurations of objects that are simple and non-specific (e.g., puts one object into another).**
Learned Combinations	**Child creates relationships between objects that represent conventional activities.**
Pretend Self	Child relates objects to the self, indicating a pretend quality to the action.
Specific Physical	Child creates a relationship between/among objects based on the physical characteristics of the objects.

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DPA Categories (continued)

Category	Definition
Varied Action Sequence	Child extends two or more different learned actions to people or objects, linked in time.
Same Action Sequences	Child extends same learned action to different people or object, linked in time.
Substitutions	**Child uses one object to stand in place for another or references an imaginary object.**
Doll-as-Agent	**Child moves doll figures as if they are capable of acting on objects and/or other dolls.**
Complex Sequences	Child links learned actions together in time, including building constructions, which integrate substitution elements.
Person-as-Agent	Child involves a person (caregiver, observer) to act out play activities on objects.
Fantasy	Play activities in which there is an element of fantasy (e.g. magic) in the activity.

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Video Examples of Play Categories

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Coding Analysis

- Exhaustive Analysis of play activities
- Identification of 27 Categories (DPA-R)
  - Revealed a highly differentiated description of play categories
  - Wanted to be more specific than commonly used
    - "relational," "functional," "symbolic" play
- Eventually boiled down to 14 categories (DPA-P)

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DPA Categories

- Indiscriminate Actions
- Discriminative Actions
- Presentation Combinations
- General Combinations
- Learned Combinations
- Pretend Self
- Specific Physical Combinations
- Varied Action Sequences
- Same Action Sequences
- Substitutions
- Doll-As-Actor
- Complex Sequences
- Person-As-Actor
- Fantasy

Earlier Developing

Later Developing

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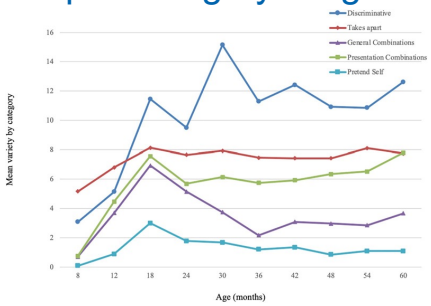
Sample Category Progression



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Lifter, K. et al.,(2022). Emergent patterns in the development of young children's object play.

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Data Analyses

Categories analyzed in terms of

- Frequency
  - Number of actions in a category
- Variety
  - Number of different *examples* of the category
  - Indicates depth of understanding of a category

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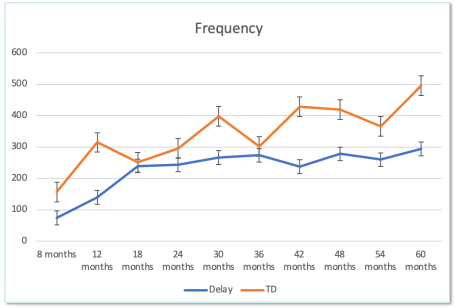
Mean Frequency of Play Activities



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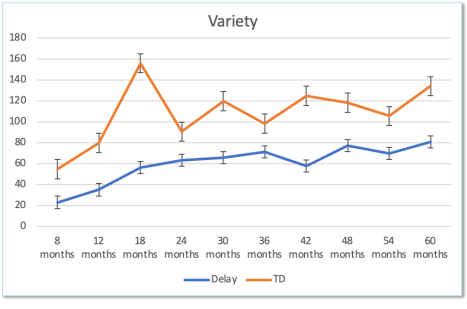
Mean Variety of Play Activities



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Further Analyses

- Separated children with delays into 3 groups
  - Children with ASD
  - Children with Down syndrome
  - Children with all other delays
- Compared these three groups to TD children

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Research Summary Points

- Developmental model
  - Across age span of 8 to 60 months
- Some early categories drop out; others stay in
- Children with delays express the same categories of play as TD children
- Similarities observed
- Differences observed in rates, ***variety***
- Value in retaining differentiated categories
  - Need to be more specific than "relational," "functional," and "symbolic" play

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Where Do We Go From Here?

Translation to Practice

- Assessment of Play
- Interventions in Play
- Communicating with Caregivers

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DPA Sample Categories

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Assessment of Progress in Play

Assigning scores to the play sample

- Mastery (variety ≥ 4; frequency ≥ 4)
- Emergence (variety = 2 or 3; f = ≥ 2)
- Basic (variety = 1; frequency = 1)
- Absence (no evidence)

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Play Assessment Practice
Case studies

1. First we will watch a video of Child 3
2. Then you will breakout into groups
3. Using your worksheet, record how many instances and types of each play behavior you notice in the video
4. Compare what you recorded with your group members
5. Note anything that stood out to you/your group
6. Share out with the larger group

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Play Assessment Practice

Sharing Out:

- What behaviors did you note most frequently for this child?
- What characteristics of their play stood out?

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Play Assessment Practice
Case studies

1. Now we will watch a video of Child 2
2. We will breakout into groups again
3. Using your worksheet, record how many instances and types of each play behavior you notice in the video
4. Compare what you recorded with your group members
5. Note anything that stood out to you/your group
6. Share out with the larger group

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Play Assessment Practice

Sharing Out:

- What behaviors did you note most frequently for Child 3? For Child 2?
- What characteristics of their play stood out?
- How did they differ?

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Summary Profiles
42-month old Children

	Child with Down Syndrome Total Frequency = 263 Total Variety = 24			Child with ASD Total Frequency = 217 Total Variety = 67			Typically Developing Total Frequency = 386 Total Variety = 119		
	Variety	Freq.	Status	Variety	Freq.	Status	Variety	Freq.	Status
Discriminative Activities	6	100	M	10	33	M	12	47	M
Presentation Combinations	7	71	M	4	16	M	4	19	M
General Combinations	3	48	E	6	22	M	9	30	M
Learned Combinations	3	20	E	20	85	M	24	136	M
Varied Action Sequences	3	19	E	10	23	M	13	22	M
Same Action Sequences	0	0	A	0	0	A	1	1	B
Pretend Self	0	0	A	3	7	E	0	0	A
Specific Physical	1	3	B	3	9	E	4	19	M
Substitutions	0	0	A	7	14	M	23	50	M
Doll-as-Actor	1	2	B	3	4	E	9	21	M
Complex Sequences	0	0	A	0	0	A	18	39	M
Person-as-Actor	0	0	A	1	4	B	2	2	E
Fantasy	0	0	A	0	0	A	0	0	A

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Additional Sample Profiles:
Two 60 month-old children

	Typically Developing Child			Child with Autism		
	Variety	Freq.	Status	Variety	Freq.	Status
Discriminative Activities	8	17	M	16	56	M
Presentation Combinations	5	13	M	9	61	M
General Combinations	1	1	A	5	6	E
Learned Combinations	21	59	M	15	41	M
Specific Physical	2	6	E	5	22	M
Varied Action Sequences	5	5	E	15	21	M
Substitutions	8	17	M	9	14	M
Doll-as-Actor	16	55	M	14	21	M
Complex Action Sequences	8	16	M	0	0	A
Person-as-agent	9	26	M	0	0	A
Fantasy	2	16	E	1	11	A

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Interventions in Play and Using Play

Identification of goals in play

- Selection of categories at the ***emerging level*** **-** the leading edge of development
- ***Developmentally Specific (DevSp) objectives***
- Increase variety of activities in a category

Identification of goals to support other domains

- Selection of activities at the ***Independent level of play (mastered play)***

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Background: Interventions in Play

We know interventions in play are successful

- (Barton & Wolery, 2008; Barton, 2015)

Based on our results, we propose:

- Using a developmental model for selecting target activities for WHAT to teach children with delays in play
  - Identifying activities at the **Emerging level**
    - → not too hard nor too easy, but JUST RIGHT

Behavioral interventions are effective for HOW to teach

- least-to-most prompting procedures

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Sample Curriculum Activities (cont.)

Vehicle Set*: Vehicles (e.g., cars, dump truck, bulldozer, trailer with car, motorcycle); figures (e.g., police person, construction worker); tools in a toolbox; blocks including some shaped for a ramp; tool puzzle; police person's hat; a "hard hat;" and play mat with roads and stores*

Cat.	Corresponding Play Activities
PC	Assembles tool puzzle; puts tools in toolbox
GC	Puts items/dump truck; small vehicles/toolbox
PS	Attempts to ride motorcycle; puts hard hat on head
LC	Uses tool piece/fix motorcycle; Puts figure/motorcycle;
VS	Uses tool piece to fix motorcycle, then puts figure on motorcycle, then pushes it for a ride
SS	Uses tool to fix vehicles, one after another; drives vehicles on road, one after another

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Sample Curriculum Activities

Vehicle Set (continued):

Cat.	Corresponding Play Activities
SP	Attaches trailer to truck; stacks blocks
SB	Pretends tools are "trash"; motorcycle is a dragon
CS	Loads dump truck with "trash," drives to "dump" and then unloads "trash"
DA	Moves figures to load truck; police figure to stop cars
PA	Directs peers, teachers to enact scenarios with vehicles
FA	Pretends motorcycle is a dragon, take on role of dragon slayer

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Targeted Intervention Practice: Child 3

Play intervention goals

- Emerging Categories
  - General Combinations
  - Learned Combinations
  - Varied Action Sequences

	Child with Down Syndrome Total Frequency = 263 Total Variety = 24		
	Variety	Freq.	Status
Discriminative Activities	6	100	M
Presentation Combinations	7	71	M
General Combinations	3	48	E
Learned Combinations	3	20	E
Varied Action Sequences	3	19	E
Same Action Sequences	0	0	A
Pretend Self	0	0	A
Specific Physical	1	3	B
Substitutions	0	0	A
Doll-as-Actor	1	2	B
Complex Sequences	0	0	A

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Targeted Intervention Practice

Child 3: Interventions in Play

- Sample curriculum activities: Vehicle Set
  - General Combinations
    - Moves tools in/out toolbox to dumper of dump truck
  - Learned Combinations
    - Applies tools to dump truck to "fix" it
  - Varied Action Sequences
    - "Fixes" truck with tool; then pushes is along (very early sequences)

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Sample Curriculum Activities

Food Set: *Doll figures (adults, children); play silverware in slotted container; pts, cups, plates; pretend food items (e.g., fruit, vegetables, hamburger, cheese, lettuce, tomato in a bowl); puzzle of food items; measuring cups in a nest; missing spoons; shopping cart.*

Cat.	Corresponding Play Activities
DS	Hugs dolls; rolls cart; walks figures
PC	Puts puzzle together; silverware in slots; nests cups
GC	Puts assorted items in bowl, cart; and back and forth
LC	Feeds food to dolls w/without utensils; stirs food in bowl; pours from measuring cup to bowl;
VS	Stirs cup w/ spoon, feeds doll; puts food in bowl, stirs;
SS	Feeds food to self, then doll; extends cup to other, then to self;

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Sample Curriculum Activities

Food Set (continued):

Cat.	Corresponding Play Activities
SP	Stacks measuring cups;
PS	Pretends "cereal in bowl"; pretends a stove to cook
CS	Stirs "cereal" in cup, feeds doll figures; cooks food on "imaginary stove" and feeds to dolls;
DA	Moves figures to cook, put food on plates, feed dolls
PA	Directs caregiver, other to stir food, cook food, feed food to figures
FA	Pretends Supergirl has come with needed food, cooks it (i.e., introduction of fantasy element).

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Targeted Intervention Practice *Child 2*

	Variety	Freq.	Status
Discriminative Activities	10	33	M
Presentation Combinations	4	16	M
General Combinations	6	22	M
Learned Combinations	20	85	M
Varied Action Sequences	10	23	M
Same Action Sequences	0	0	A
Pretend Self	3	7	E
Specific Physical	3	9	E
Substitutions	7	14	M
Doll-as-Actor	3	4	E
Complex Sequences	0	0	A
Person-as-Actor	1	4	B
Fantasy	0	0	A

- Which play categories would you target for intervention for this child?
- Which intervention activities would you suggest using the food set?
- Food Set: *Doll figures (adults, children); play silverware in slotted container; pots, cups, plates; pretend food items (e.g., fruit, vegetables, hamburger, cheese, lettuce, tomato in a bowl); puzzle of food items; measuring cups in a nest; missing spoons; shopping cart.*

Specific Physical: stack measuring cups

Doll-as-Actor: Moves figures to cook

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Reflection: Child with Whom You Work

- Think of a child you are working with who could benefit from play intervention
- Note the child's play activities according to categories on your work sheet
- Consider which play categories are at the emerging level for them
- Brainstorm how you could use toys at your site to practice emerging play skills
- Share out why you chose this child and these skills to focus on

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Implementing Play Interventions

- Use of child-directed teaching procedures
  - Follow child's lead
  - Use what child is attending to
  - Add in related toy(s)
  - Use least-to-most prompting procedures
- Child-directed teaching maximizes child's attention
  - With emerging activities that assessment directs, ***we are enhancing attention***
- Natural Language Paradigm supports development of language

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Lifter et al., 1993; 2005

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Intervention Example: Child 3

Target Activity (Learned Combinations)	• Uses tools to fix vehicles (car, truck)
Wait for child to focus on truck	• "Yes, that's the truck"
When attending, bring toolbox into focus	• Slowly "here are tools to fix the truck"
Least-to-most prompting	• Wait for child to move tool to fix truck; point to tool and then truck; say "let's fix the truck"; guide child's hand to pick up tool, then to truck saying "we're fixing the truck"

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Play Interventions to Support Other Domains

- Play to support goals in ***Language***
  - Recommend play at ***emergent level and mastery level***
  - Interventions in play for learning provide a context for hearing language mapped onto activities child is in process of learning

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Play Interventions to Support Other Domains

- Play to support goals in ***Social Engagement***
  - Recommend play at the mastered level as resources are required for social engagement (Pierce-Jordan & Lifter, 2008)

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Other Domains: Example Child 3

Play to Support Social Engagement

- Child with Down syndrome
  - Play categories at the mastery level
    - Presentation Combinations
  - Implementation activities could include:
    - Taking apart puzzles and putting them back together
    - Taking toys out of a container (e.g., toolbox) and putting them back in

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Implications for Families

- Increased awareness about importance of play
- Increase engagement in play
  - Understanding what the child knows in play
  - Scaffolding new play activities at the developmental level
  - Providing opportunities for caregivers to engage with their children
    - ❖Responsiveness of child likely increases when child is playing at a level the child understands

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Implications for Families

- When caregivers attend jointly, and name and comment on the activities their children are in the process of learning,
  - they help children learn language.
- Children learn to:
  - modulate and sustain attention
  - represent and comment on what they are playing about

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Context for Social/Emotional Development

For caregiver to:

- attune to infant, respond to infant
- help regulate infant to maintain attention
- provide words/sentences describing the world

For child to:

- engage with caregivers
- develop knowledge about objects and events through actions
- learn words and sentences that describe objects, people, and events

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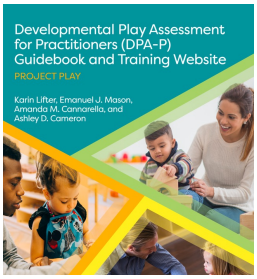
Applying these skills in your setting



- Assessment in individual and group contexts
- Assessment for 30 minutes or in segments
- Interventions in individual and group contexts

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Discussion & Questions

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