### **Increasing Play Complexity in** Young Children with Autism and Other Disabilities

Erin E. Barton, PhD, BCBA-D



- 1. Defining play
- Defining play
   Teaching play
   Using SLP with preschoolers
   Using SLP with toddlers
   Single prompt procedure: CTD
   Play diversity
   Play sequences
   Board games
   Block play
- 3. Implementation Supports





It's what children do.

3



Why is play important for children with disabilities? **Practical Predictive** Context Children with typical development play

Children with typical development play

### Is play a pivotal skill?

- ✓ There is a developmental sequence to play
- ✓ As children learn more about objects they demonstrate more sophisticated play skills.
- ✓ Play development has also been compared to the development of other cognitive skills, such as selfregulation, metacognition, and problem-solving (Whitebreak Column, Jameson, & Lander, 2009).
- ✓ Play fosters independence and problem solving in young children (Goetz, 1981; Goetz & Baer, 1973; Holman, Goetz, & Baer, 1977; Ryan & Winston, 1978).

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The United Nations Human Rights Office of the High Commissioner asserted that play is the right of every child because it "is essential to the cognitive, physical, social, and emotional wellbeing of children and youth"

(Ginsburg, the Committee on Communications, & the Committee on Psychosocial Aspects of Child and Family Health, 2007, p. 182).



American Academy of

Pediatrics (2007) supports child led play as it helps children learn to use complex social behaviors (e.g., sharing, problem solving, resolving conflicts) and self advocate for their needs.



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Like all children, it is critical for children with disabilities to be exposed to a variety of rich experiences where they can

learn in the context of play and everyday interactions and engage with their peers with and without disabilities.



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES & EDUCATION POLICY STATEMENT ON INCLUSION OF CHILDREN WITH DISABILITIES IN FARILY CHILDHOOD PROGRAMS



Two Play Types



### Social Play (Parten, 1932)

1.Unoccupied

4. Parallel

2. Solitary

5. Associative

3.Onlooker

6. Cooperative



**Object Play** 

### Sherrat & Peter (2002) Chance (1979)

• Sensorimotor

Physical

- Relational
- Manipulative
- Functional
- Symbolic
- Symbolic

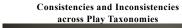
• Games

• Themed Fantasy



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### **Defining Play**

- Major limitation across play research is the lack of consistency in defining play (Barton & Wolery, 2008; Barton, 2010)
- Operationally define functional play and symbolic play
- Nonliteral nature of symbolic play might be important
- Consider normative samples

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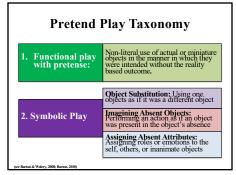


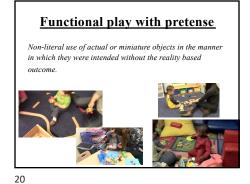
Development of a Taxonomy of Pretend Play for Children With

# Disabilities

Erin E. Barton, PhD, BCBA

PLAY BEHAVIORS are often believed to par-allel language due the similarities in the use of representation and symbols (e.g. Rown Na Murray, 2001; Fein, 1981; Plaget, 1962) when the second of the se





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**Imagining Absent Objects** 

22



Play Considerations 1. Vocalizations 2. Diversity 3. Sequences 4. Peers

24

### **Play Goals**

- 1. Increase the <u>frequency or duration</u> of play.
- 2. Engage in more complex types of play.
- 3. Increase frequency or duration of <u>play</u> with others.



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### Research Study #1

- Is an intervention package with SLP and contingent imitation functionally related to increases in unprompted pretend play
- Does play generalize to a free play context?

(Barton, 201)

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# | Children | Age (Gender) | Age (Mullen) | Disability | CARS | Pre / Post- Play Age (Mullen) | Pre / Post- Play Age (Mullen) | Pre / Play Pre /

Teaching Generalized Pretend Play and Related Behaviors to Young Children With Disabilities

Erin E. Barton¹

Abstract
Children with disabilities play less often and demonstrate fewer varied pretend play behaviors than children with typical development. A multiple-probe design was used to examine the relation between teachers' use of the system of least prompts and contingent instants and the acquisition, maintenance, and generalization of pretend play and retated behavior by four children with disabilities. Results indicated the teachers' use of the intervention package was functionally related to increase in the children's frequency and dorsety of pretend play and generalization of children's pretend play are considered the standard properties of the intervention package was functionally related to increase in the children's frequency and dorsety of pretend play and extend the laterature by assessing generalization of children's pretend play across contexts and measuring intervention and implementation fidelity. Overall, this study provides as torgo agreements renging in systematic instruction of play, including pretend play, for children who do not display such behaviors.

Now we know WHAT to teach

So, HOW can we increase the frequency or duration of play.

Teacher Participants

Teachers Child Education Years Paid Exp.

Mike Molly HS diploma 3 years

Talia Melissa Some college (English)

Rachel Casey HS diploma 9 years

Josic Louis BA in Early Education 4 years

(Barton, 2015)

### Method Multiple probe across behaviors and toy sets and replicated across four children Probe sessions without prompts First condition focused on FPP - Second condition focused on SYM - Third condition focused on IEP goals Condition change criterion: 3 consecutive sessions with more unprompted than prompted of the target behavior Intervention Package Contingent imitation - System of least prompts - Reinforcement: Descriptive statement

ier 1: Functional Play with l retense Tier 2: Symbolic Play related IEP Instructional Sessions

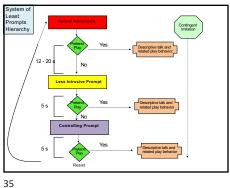
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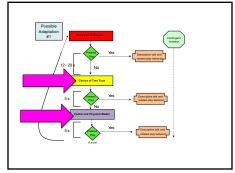
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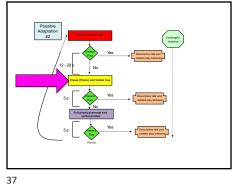
Method Unprompted or Prompted Type of Play: FPP, OS, IAO, AAA Dependent Variable Sequence # or No Sequence Same or Different Timed Event Recording using ProcoderDV Measurement System 33

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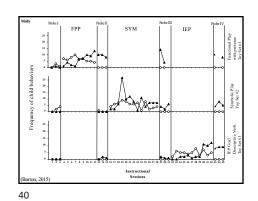


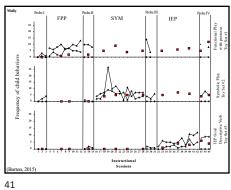


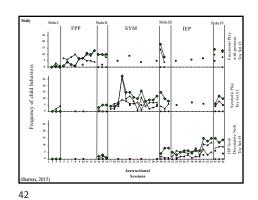


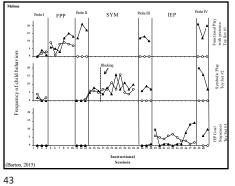




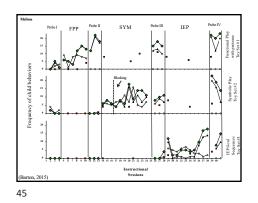








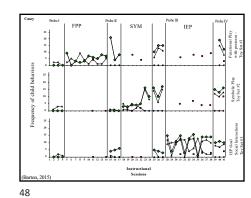
Blocking Instructional Sessions 44

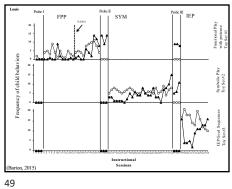


Frequency of child behaviors Instructional Sessions 46

SYM of child behavio

47





~^^^

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Instructional Sessions

**Unprompted Different** Toy Set 2 SYM 3.7 (2 - 6) 5 (4 - 6) Toy Set 3 IEP 0.7 (0 – 2) 7.3 (5 – 9) Probe 3 Toy Set 2 SYM Toy Set 3 IEP

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Unprompted Different					
Casey	Probe 1	Probe 2	Probe 3	Probe 4	
Toy Set 1	0	6.7 (3 – 10)	8 (5 – 10)	10 (8 – 12)	
Toy Set 2 SYM	0	0	7.7 (4 – 11)	8.7 (6 – 12)	
Foy Set 3 EP	0	0	0	6.3 (5 – 8)	
Louis	Probe 1	Probe 2	Probe 3	Probe 4	
Toy Set 1	0	8 (6 – 10)	6.7 (5 – 8)	-	
Toy Set 2 SYM	0	0	6 (4 – 9)	-	
oy Set 3 EP	0	0	0	-	

Vocalizations\* Casey \*Mean unprompted per session within the condition

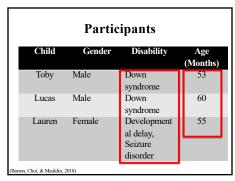


• Is an intervention package with a *single* prompt procedure (CTD) and contingent imitation functionally related to increases in unprompted pretend play?



(Barton, Choi, & Mauldin, 2018)

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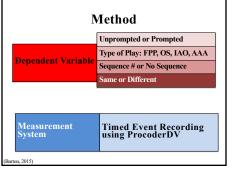
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### Method

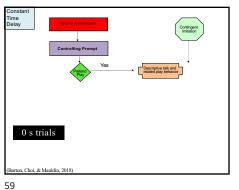
- Multiple Probe across toy sets
- · Met WWC standards with reservations
  - · IOA was high across participants, behaviors, and conditions (>20% of sessions)
  - 1 tier had 4 data points
- · Procedures during baseline and intervention were implemented with high fidelity.

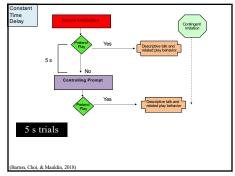
(Barton, Choi, & Mauldin, 2018)

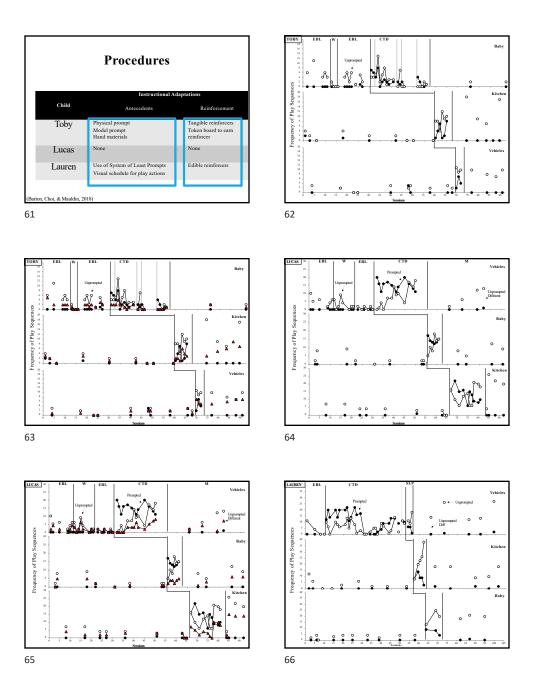
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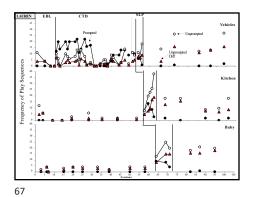


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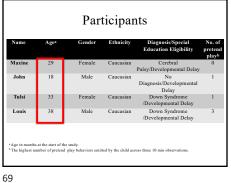


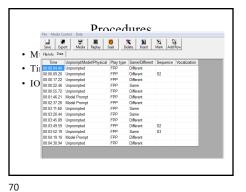
Research Study #3

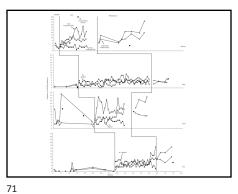
Does the use of system of least prompts (SLP) increase the level of target play behaviors in young children with developmental delays?

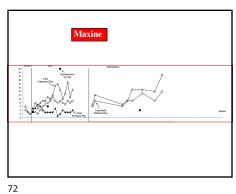
- Does the use of SLP increase the level of different target play behaviors in young children with developmental delays?
- Do the increased levels of target play maintain after intervention is withdrawn?

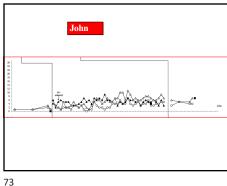
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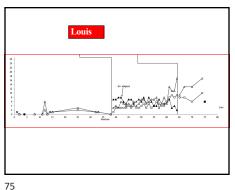








Tulsi



**Social Validity** 4.13 4.00 3.75 1.63 1.88 2.00 3.25

Results

- SLP was functionally related to an increase in the level of target play
  - Behavior change for 3 young children with disabilities at three different points in time.
- The increases maintained when intervention was
- The intervention consistently produced higher levels of different target play across all the participants.

Now we know how to increase frequency and duration....

So, HOW can we increase the <u>complexity</u> of play.

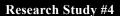


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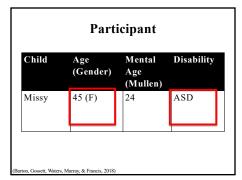


 Does prompting and reinforcing diverse play increase the *diversity of play* in a preschooler with autism as compared to prompting and reinforcing all pretend play?



(Barton, Gossett, Waters, Murray, & Francis, 2018)

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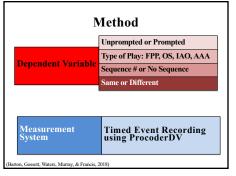
### **Experimental Design**

- Multitreatment design (A-B-C-B-C-C') to examine the relation between play diversity and the system of least prompts and contingent reinforcement.
- This study was designed and executed to meet contemporary single case research standards
  - IOA and PF met design standards
  - Kratochwill and colleagues (2013)

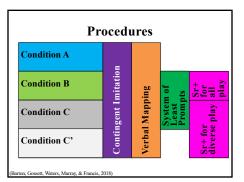
(Barton, Gossett, Waters, Murray, & Francis, 2018)

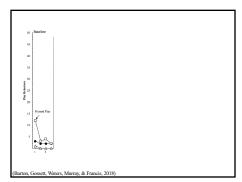
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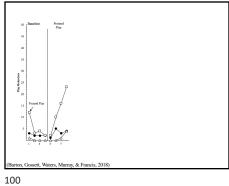
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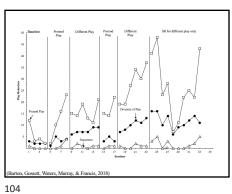
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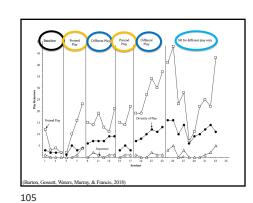
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(Barton, Gossett, Waters, Murray, & Francis, 2018)

(Barton, Gossett, Waters, Murray, & Francis, 2018)

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### **Implications for Practice**

- SLP is effective: total unprompted play showed an increasing trend across conditions.
- Play diversity increased, only when intentionally targeted.
- For children with ASD, it might be particularly important to focus on diversity of play and response generalization given their propensity for sameness and repetition.

(Barton, Gossett, Waters, Murray, & Francis, 2018)

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### Research Study #5

- Does the use of the system of least prompts (SLP) increase *sequences of play* in a child with autism?
- Does the skill maintain over time?
- Does the skill generalize across toys?



Barton, Gossett, Waters, Murray, & Francis, 201

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### **Participant**

Child	Age (Gender)	Disability
Missy	51 (F)	ASD

(Barton, Gossett, Waters, Murray, & Francis, 2018)

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### **Experimental Design**

- · Multiple probe across toy sets
- Rationale:
  - One participant
  - Non-reversible skill
  - Multiple toy sets for functional relation
  - Testing one intervention
- This study was designed and executed to meet contemporary single case research standards as identified by Kratochwill and colleagues (2013)

(Barton, Gossett, Waters, Murray, & Francis, 2018)

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# Dependent Variables: Play Behaviors

1. Sequences of play

**Definition:** Two different but related play actions, with the second play action occurring within 3s of the offset of the first play action.

- offset of the first play action.

   Example: hold the baby, then feed the baby
- Number of prompted and unprompted pretend play behaviors
- 3. Total number of pretend play behaviors
- 4. Number of different play behaviors

sarton, Gossett, Waters, Murray, & Francis, 2018)

### Dependent Variables: Measurement

- · Timed event recording with ProCoderDV
- · Interobserver agreement
  - Point-by-point method
  - Overall average: 91%

Barton, Gossett, Waters, Murray, & Francis, 2018)

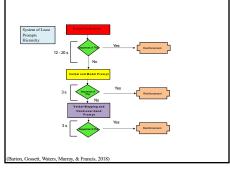
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### **Independent and Control Variables**

- · Control Variables
  - Session length (5 min)
  - Seated at table in classroom
  - Continuous access to toy set
- Independent Variables
  - System of Least Prompts (SLP)
  - SR+ for correct response

(Barton, Gossett, Waters, Murray, & Francis, 2018)

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### **System of Least Prompts**



(Barton, Gossett, Waters, Murray, & Francis, 2018

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### **Maintenance and Generalization**

- Maintenance
  - Same toy sets, without prompting procedure
- Generalization
  - Used toys in the classroom and prompting as needed
  - Longer sessions

(Barton, Gossett, Waters, Murray, & Francis, 2018)

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### **Implications for Practice**

- SLP can be used as a means to increase play behaviors in young children with autism, but reinforcement must be maintained
- Teachers should train typically developing peers to engage in object play with children with autism in the classroom and reinforce the target child and the peers for playing together to increase opportunities for language and social learning.

(Barton, Gossett, Waters, Murray, & Francis, 2018)

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Now we know how to increase frequency and duration....

So, HOW can we increase social play?



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### Research Study #6

- Is there a functional relation between the instructional package (SLP and visuals) and levels of appropriate board game play behaviors in preschoolers with or at-risk for disabilities?
- Does the intervention package increase social communication between children with or at-risk for disabilities and other individuals during board game play?

Barton, Pokorski, et al., 2018

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### **Setting**

- Sessions were conducted in a small, private room in an inclusive preschool.
- Each session included two children, one target and one peer participant, who sat across from one another with the board game between them
- The implementer sat at the head of the table within arm's reach of both children.

Barton, Pokorski, et al., 2018

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### **Experimental Design**

- · Multiple probe across participants
  - Intermittent baseline probes (Gast, Lloyd, & Ledford, 2014).





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### Design

- Interobserver Agreement (IOA)
- IOA was assessed for at least 30% of sessions across participants and conditions, for both dependent variables.
- Average IOA per participant per condition per DV was at or above 88%
- · Procedural Fidelity (PF)
- Average procedural fidelity by condition was 85%
- This study was designed and executed to meet contemporary single case research standards as identified by Kratochwill and colleagues (2013)

Barton, Pokorski, et al., 2018

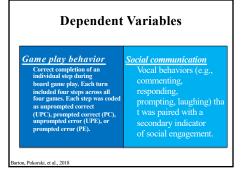
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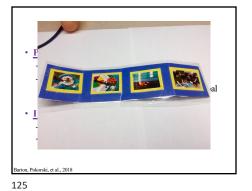
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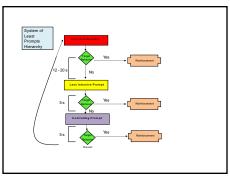
## Participants

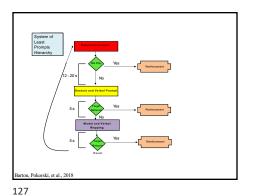
Name	Gender	Diagnosis	Race	Age
Elizabeth	Female	Autism	White	46 (M)
Kamala	Female	DiGeorge syndrome	White	61 (M)
Tammy	Female	Visual impairment and cognitive delay	Black	52 (M)
Bernie	Male	At-risk for social delays	Hispanic	35 (M)

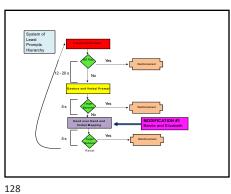
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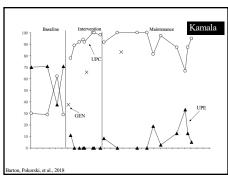






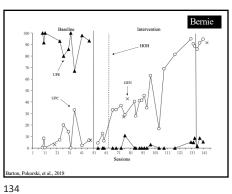
Elizabeth tarton, Pokorski, et al., 2018

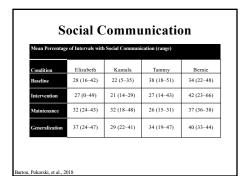
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Tammy Barton, Pokorski, et al., 2018

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### **Social Communication**

- · Quality of social communication
  - Anecdotally, they began talking more about the board game
    - · "That's my favorite piece"
- Why is this important?
  - Opportunity to embed communication goals

Barton, Pokorski, et al., 2018

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### Summary

- This study demonstrates that an intervention consisting of systematic least-to-most prompting and reinforcement is effective for increasing the appropriate, independent board game play of preschool children.
- Anecdotally, target children continued to request the board games after the conclusion of the study and maintained their level of independent game play, confirming the social validity demonstrated by the previous study (Davis-Temple et al., 2014).

Barton, Pokorski, et al., 2018

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### Summary

- No differences were noted in the level of game play behavior across target children associated with specific peer partners—generalized across peers and games
- 3 of 4 generalized across games, Elizabeth might require explicit instruction across other games. Individualization is critical.

Barton, Pokorski, et al., 2018

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### **Implications for Practice**

- Systematic prompting, visuals, peer supports, and reinforcement contingencies with diverse learners.
- · Modifications for non-responders
- Generalization, especially as related to peer partners, should be programmed when planning interventions.
- As a behavioral cusp, play provides children with ample opportunities to engage in social communication 20.40%
  - Use this to embed language goals
- Social validity, they requested it meaning they had fun

Barton, Pokorski, et al., 2018

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# Journal of Positive Behavior Interventions Interventions An Empirical Examination of Effective Practices for Teaching Board Game Play to Young Children An Empirical Examination of Effective Practices for Teaching Board Game Play to Young Children Bin E Bath, Ho. Dacko, Bizadeh A. Pidorals, Mel. Erin M. Bisseney, Mila more. Show all authors First Relabed, Annuy 22, 2181 Beassent Articles Anti-tracet Abstracet We examined an intervention package using peer modeling, systematic prompting, and configency reinforcement to increase the Requency and complexity of board game play and social behaviors in young children with disabilities. Four children with or at last classifilies participated with their spice and processing power. Results indicated a storag functional relation given the magnitude of change across conditions and participants and robust suby rigor. Minor individual adaptations were used for two of the four participants. Overall, the study estendist the research no board game play across conditions and principants and robust suby rigor. Minor individual adaptations were used for two of the four participants. Overall, the study estendist the research no board game play across conditions and principants and robust suby rigor. Minor individual adaptations were used for two of the four participants. Overall, the study estendist the research no board game play and their pears.

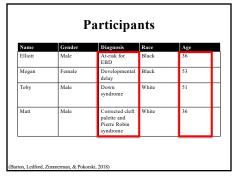
Research Study #7

 Does the use of contingent imitation and play expansions increase levels of engagement and complexity of block play for children with or at-risk for disabilities and their peers?





(Barton, Ledford, Zimmerman, & Pokorski, 2018)



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### Why block play is important

- Block building is a normative play activity that provides an opportunity for children with and without disabilities to play together
- Block play provides opportunities to improve motor skills, spatial awareness, and foundational math concepts
  - Might result in increased future academic competence
- Time spent playing with blocks correlates with measures of creativity
- Might promote generalization and problem-solving

(Barton, Ledford, Zimmerman, & Pokorski, 2018)

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### Levels of block play

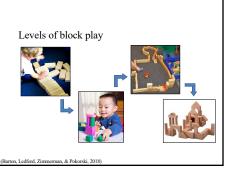
Hierarchy of block play from simple linear forms to complex structures built to scale

Can be separated into block play with and without pretend play

- Construction: building without naming or pretend play
- Pretend play: representing and name objects/structures and parts; adding diverse play materials (cars, dolls)

(Barton, Ledford, Zimmerman, & Pokorski, 2018)

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# Methods to Increase Block Play

Combination of multiple strategies provides diverse supports for increasing block play complexity

Expand

Reinforce

Individualize

Ratton, Ledford, Zimmerman, & Pokoeski, 2018)

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### **Inclusion of Peers**

Provide opportunities to practice block building in small group settings including children with various levels of skill.



(Barton, Ledford, Zimmerman, & Pokorski, 2018)

### **Imitation**

Immediate imitation of child's block actions using a duplicate block or a close approximation, while narrating the action (using words and phrases the child might use).



(Barton, Ledford, Zimmerman, & Pokorski, 2018)

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### **Expansion**

Provide a simple addition to child's occurring block play, while narrating the play expansion (using words and phrases the child might use).



(Barton, Ledford, Zimmerman, & Pokorski, 2018)

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### Reinforcement

Provide explicit positive feedback immediately following appropriate or target block skills.

 Positive social attention (behaviorspecific praise, highfive, hug)



(Barton, Ledford, Zimmerman, & Pokorski, 2018)

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### **Strategy in Action!**



(Barton, Ledford, Zimmerman, & Pokorski, 2018

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How to Individualize

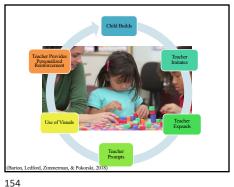
Individualization might be required for some children

Prompting

Visuals

Reinforcement

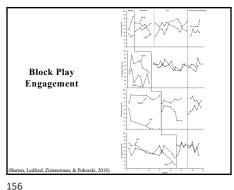
(Barton, Ledford, Zimmerman, & Pokorski, 2018)



### **Strategy in Action**



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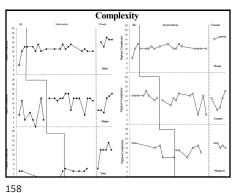


### Conclusion

Block play provides an ideal context for supporting social interactions between children with and without disabilities and for teaching increasingly complex play.

Meaningful block play—with the addition of teacher supports as needed—should be considered an important component of preschoolers' educations and prioritized in early childhood settings.

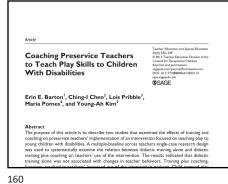
157

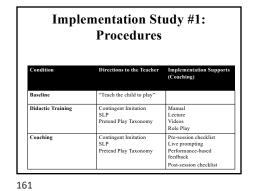


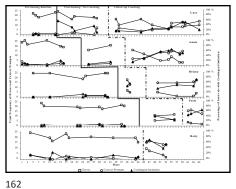
# LAST ONE!!!!

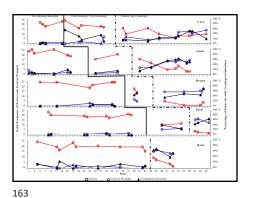
## **#8: Interventionist Training**

- Classroom teachers need to be able to teach children to play in classrooms with other children
- Practices need to be <u>feasible</u> and <u>usable</u>
- Examine effective implementation features

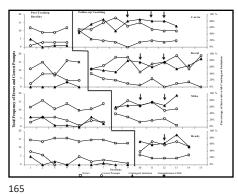


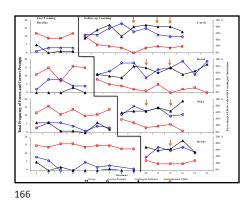


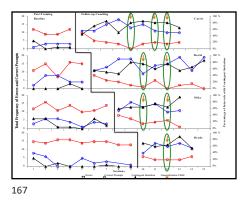




Condition	Content	Methods			
Didactic Training	Contingent Imitation SLP Pretend Play Taxonomy	Manual Lecture Videos Role Play			
Coaches Training	Effective coaching components	Manual Lecture Role Play			
Coaching	Contingent Imitation SLP Pretend Play Taxonomy	Pre-session checklist Live prompting Performance-based feedback- 5 comments Post-session checklist			







Child 1 (Carrie)

Child 2 (Carrie)

Child 3 (Carrie)

Child 4 (Carrie)

Child 4 (Carrie)

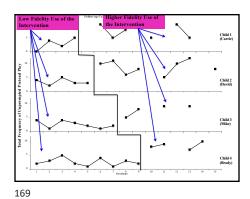
Child 5 (Carrie)

Child 6 (Carrie)

Child 7 (Carrie)

Child 7 (Carrie)

Child 8 (Carrie)



Wrap-Up!!!!

- SLP plus contingent imitation is related to increases in generalized object play, sequences of object play, and play-related behaviors
- 2. CTD might be effective
- 3. How do we facilitate generalization?
- 4. How do we include peers?



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