The Power of Parenting for Young Children with Disabilities: A Parent-Child Interaction Measurement Tool, Research Findings and Suggestions for Use

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Early Intervention/Early Childhood Special Interest Group (EIEC SIG)
Webinar Series
Tuesday 28, 2014

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- Presentation
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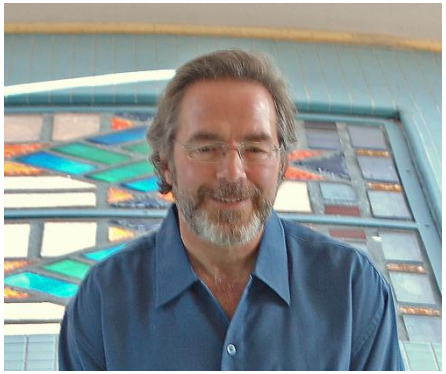
Presenter



Mark S. Innocenti, PhD is Director of the Research and Evaluation Division at the Center for Persons with Disabilities, a University Center for Excellence in Developmental Disabilities, and an Associate Professor in Psychology in the Emma Eccles Jones College of Education and Human Services at Utah State University. Mark has over 30 years of experience working with infants and young children at-risk and with disabilities and their families through multiple research and model demonstration projects. He has served as Principal Investigator on a number of research projects including the ten-year Longitudinal Institute on the Effects and Costs of Early Intervention for Children with Disabilities, the Bilingual Early Language and Literacy Support (BELLS) Project, and the Cache County site of the National Children's Study. Mark has worked on demonstration and training projects that have examined areas such as social interaction, child transition, naturalistic intervention, parent-child interaction, and service systems. Mark is a Past-President for the Division for Early Childhood (DEC) of CEC, and served on the Board of Directors for CEC and AUCD. He is a member of the Academy of Zero to Three Fellows.

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Parenting and Parent-Child Interaction is Important to Promote Development

- Predictive of better developmental outcomes
  - For typically developing children (Bradley et al., 2001; Bradley et al., 1994; Love et al., 2005)
  - For children with a disability (Spiker, Boyce, & Boyce, 2002; Spiker, Hebbeler, & Malik, 2005)

Models of Development Include Parenting

- Transactional model (Sameroff & Fiese, 2000)
- Developmental systems approach (Guralnick, 2005, 2011)
- Family-centered practice (Dunst & Trivette, 2009; Dunst et al., 1988, 1994; Trivette et al., 2010)

Parenting and Parent-Child Interaction not a Focus of Current Intervention Practice

- Our models, while not excluding child-focused activities, suggests the central focus should be on parent-child interaction
- Early intervention primarily child focused
  - 44% of home visits focused solely on the child (Scarborough et al., 2004 - report)
  - Home visit time (Peterson et al., 2007 - observation)
    - 66% spent directly with the child
    - 51% teaching the child directly,
    - 33% engaging in adult interactions
- Despite an average of <2 hours of home visiting/month

Measurement: The Missing Piece?

- In 1996, Mahoney, Spiker, and Boyce (1996) found no psychometrically sound parent-child assessment measures
  - Recommended reliable, valid, easy to use, practical
- Would a useful measure lead to changes in practice?
- This study: Examining **PICCOLO** as a measure to fill this void

What is **PICCOLO?**

Parenting Interactions with Children: Checklist of Observations Linked to Outcomes

Roggman, L.A., Cook, G., Innocenti, M.S., Jump Norman, V.K., & Christiansen, K. (2013). *PICCOLO: Parenting interactions with children: Checklist of observations linked to outcomes*. Baltimore, MD: Brookes.

Parenting Interactions with Children: Checklist of Observations Linked to Outcomes

- Observational measure of developmental parenting
  - with children age 1-3, with or without disabilities

PICCOLO™

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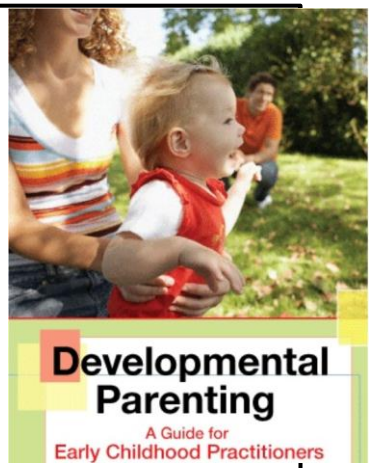
What is developmental parenting?

- How parents support children's development
- A goal of most home visiting programs
- Supported by our models
- A research–based approach to home visiting
  - ✓ Not a program or a curriculum
  - ✓ Strategies to ***engage parents in supporting their children's development***



Why use PICCOLO?

PICCOLO identifies parenting behaviors that support early child development

PICCOLO shows what parents are comfortable doing and think is important to do

PICCOLO can help early childhood practitioners provide encouraging feedback about positive parenting

What does PICCOLO measure?

PICCOLO™

Affection: Warmth, closeness, positive emotions

Responsiveness: Responds to cues, communication

Encouragement: Support of interest & effort

Teaching: Conversation, play, cognitive stimulation

(Bornstein et al., 1998; Caspi et al., 2004 ; Dickinson et al., 2003 Dodici et al., 2003; Estrada et al.,1987; Gardner et al., 2003; Hirsh-Pasik & Burchinal, 2006; Perry, 2002; Petrill & Deater-Deckard, 2004; Roggman et al., 2004; Snow, et al., 1998; van den Boom, 1994)

What do practitioners say about PICCOLO?

It highlights parents' skills.

It's easy to learn.

I saw things I didn't see before.

What is PICCOLO like?

Brief: requires only a 10-minute observation

Specific: has 29 behavior descriptions, scored 0, 1, or 2

Practical: helps guide program planning

Reliable: observers usually agree

Valid: predicts good child outcomes

Easy: to learn and use

How was PICCOLO developed?

Data & video from the *Early Head Start Research & Evaluation Project*

New observations of over 4,500 video clips from over 2,000 families in 17 communities across the US.

29 best items from over 100 items

- inter-rater reliability
- internal consistency
- single factor structure in domains
- construct validity
- predictive validity

PICCOLO cultural considerations

PICCOLO was tested in 3 ethnic/cultural groups:

- European American
- African American
- Latino American

PICCOLO observers of multiple ethnicities observed within and across ethnicity of families on video clips

PICCOLO is reliable and valid within each group

PICCOLO is . . .

Reliable:

Independent observers rate PICCOLO items similarly,

- average 77% agreement
- scores correlated between observers, $r > .77$
- 2 of 3 observers agree 90% of the time

and PICCOLO domain items “hang together”

- domains are internally consistent, alpha > .70
- single factor structure within each domain

PICCOLO is . . .

Valid*:*

- ***content validity:*** practitioners rate the behaviors as important

- ***construct validity:*** domains are correlated with similar measures

- ***predictive validity:*** domains predict children's cognitive skills, vocabulary, emergent literacy, emotion-regulation, and social behavior

Construct validity

PICCOLO is correlated with “3-bag” parent-child interaction scales in the Early Head Start Research & Evaluation Project

- Affection with *positive regard*
- Responsiveness with *sensitivity*
- Encouragement with *supportiveness**
- Teaching with *cognitive stimulation*

* Encouragement behavior was not rated in EHSREP, but estimated from sum of positive rating scales.

Predictive validity
PICCOLO predicts child outcomes

Social-Emotional

Bayley Behavior Rating of Emotion Regulation at age 3

Child Behavior Checklist of Aggression at ages 3 & 5

Cognitive

Bayley Mental Development Index at age 3

Woodcock-Johnson Problem Solving Subscale at age 5

Language

Peabody Picture Vocabulary Test at ages 3 & 5

Woodcock-Johnson Letter-Word Subscale at age 5

* References for measures are in the PICCOLO User's Guide

Is **PICCOLO** useful for children with disabilities?

Data Sources

- Early Head Start Research and Evaluation Project (EHSREP) data base
  - 17 sites who collected video observations of mother-child interaction at 1 year, 2 years, and 3 years child age
  - Longitudinal data at pre-kindergarten and 5th grade
- Children coded with the **PICCOLO**
  - Ages 1 year, 2 years, and 3 years
  - European American, African American, and Latino American families who spoke either English or Spanish

Subjects

- 309 children with an identified disability (CID)
  - 10.1% of the sample
- 236 with **PICCOLO,** Children either:
  - Received Part C services
  - Had a diagnosed condition which should have made them eligible for Part C services
  - Based on criteria developed by Peterson et al., 2004
- 1,381 children without an identified disability with **PICCOLO** (CNID)

Measures

- **PICCOLO** – ages 1, 2, and 3 years of age
- 3 years of age
  - Peabody Picture Vocabulary Test (PPVT), BSID2-MDI
- Pre-Kindergarten (5 years of age)
  - PPVT, Woodcock Johnson-Revised – Applied Problems and Letter Word Identification
- 5th Grade
  - PPVT, WISC-4 matrix reasoning, ECLS-K Language/Literacy and Math Assessment

Demographics

- Low-income Head Start
- 74% had high school education or less
- Adult male was present in 43% of households
- Children were 65% male in CID, 50% in CNID
- Ethnicity: 52% white, 17% Hispanic, 31% African-American
- 88% spoke English as primary language
- 50% had => 3 risk factors

Total PICCOLO Scores at Each Observation

	CID (n = 174 to 195)		CNID (n = 1157 to 1381)	
PICCOLO	M	SD	M	SD
1 Year old	38.15	8.23	38.14	7.56
2 years old	40.52	8.33	41.16	7.72
3 years old	40.77	7.80	40.47	7.68

No statistically significant differences

Psychometric Properties for CID Group

- Internal consistency alpha across the four domains averaged .80
- Confirmatory factor analysis
  - Single factor structure was supported in each domain
- Construct validity with EHSREP video observations of parenting (Fuligni & Brooks-Gunn, 2013)
  - Significant correlations between supportiveness and the **PICCOLO** at ages 1, 2, and 3 ($r = .54, .65, .53$, $p < .00$, $n = 188$)

Predictive Validity	PICCOLO		
Outcome measure	1 year old	2 years old	3 years old
3 years old			
PPVT[1] (n = 138 to 149)	.25*	.20*	.19*
BSID MDI[2] (n = 135 to 150)	.24**	.31**	.24**
5 years old			
PPVT (n = 131 to 139)	.41**	.39**	.40**
WJ[3] Applied Problems (n = 137 to 145	.26*	.29*	.30**
WJ Letter/word Id (n = 117 to 121)	.24**	.23*	.29**
Grade 5			
ECLS-K[4] math (n = 97 to 103)	.29**	.32**	.31**
ECLS-K[5] lang/lit (n = 98 to 108)	.33**	.34**	.39**
Matrix Reasoning[6] (n =98 to 109)	.29**	.31**	.34**
PPVT (n = 97 to 108)	.33**	.40**	.36**

Multiple Regression Analyses

- *z*-score transformation of outcome variables
- 3-step multiple regression
  - Step 1: Head Start site
  - Step 2: ethnicity, child gender, family risk group, and (at 5th grade only) school poverty
  - Step 3: **PICCOLO**

Multiple Regression Results

Dependent variable	Model F*	Adj R^2	Change R^{2a}	beta PICCOLO*
3 years old				
CNID	15.87	0.28	0.04	0.23
CID	6.31	0.53	0.20	0.48
5 years old				
CNID	11.29	0.21	0.05	0.26
CID	2.08	0.27	0.19	0.48
Grade 5				
CNID	13.67	0.23	0.05	0.24
CID	2.94	0.29	0.08	0.34

[a]Change from step 2 to step 3. *$p \leq .001$ for all outcomes

Multiple Regression Results

Dependent variable	Model F*	Adj R^2	Change R^{2a}	beta PICCOLO*
3 years old				
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CNID				0.26
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Grade 5				
CNID	13.67	0.23	0.05	0.24
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An increase of 1 *SD* in the PICCOLO score (four additional parenting behavior) predicts better outcomes by ~1/2 *SD*

[a]Change from step 2 to step 3. *$p \leq .001$ for all outcomes

Is **PICCOLO** psychometrically sound for children with an identified disability?

- Strong reliability
- Strong construct and predictive validity
- Useful measure for assessing parent-child interaction when children have an identified disability

Is early parenting important for children with an identified disability?

- Strong support
  - early parenting predicted cognitive and language outcomes up to 10 years after the first **PICCOLO** assessment
- Parenting more important
  - Impacts of the parenting environment are greater for children who are more developmentally vulnerable because of a disability.
  - Differential susceptibility hypothesis (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007)

Is positive parenting a challenge for children with a disability?

- Child challenges - less predictable cues, less responsive, unpredictable responses to parents' behaviors, atypical development
- Parent challenges – stress, marital satisfaction, time availability, environmental risks
- Combined challenges
- Not all parents challenged

Why is parenting and parent-child interaction not a major focus of EI?

- Practitioners say:
  - parents cannot provide the support needed
  - that the children's disability interferes with positive parenting
  - the kinds of parenting provided by parents of typically developing children will not be adequate for a child with a disability
- Results suggest these statements are not true
  - Positive, developmentally supportive parenting behaviors were more predictive of positive longitudinal outcomes

29 things parents do that support development

1. Speak warmly
2. Smile at child
3. Praise child
4. Stay physically close to child
5. Say positive things to child
6. Interact in positive ways with child
7. Show emotional warmth
8. Pay attention to what child is doing
9. Change activities to meet child's interests or needs
10. Be flexible when child changes interests
11. Follow what child is trying to do
12. Respond to child's emotions
13. Look at child when child talks or makes sounds
14. Reply to child's words or sounds
15. Wait for child's response after making a suggestion
16. Encourage child to do things with toys
17. Support child's choices
18. Help child do things on his or her own
19. Verbally encourage child's efforts
20. Offer suggestions to help child
21. Show enthusiasm about what child does
22. Explain reasons for something to child
23. Suggest activities to build on what child is doing
24. Repeat or expand child's words or sounds
25. Label objects or actions for child
26. Engage in pretend play with child
27. Do activities in a sequence of steps
28. Talk about characteristics of objects
29. Ask child for information

Is developmentally supportive parenting enough?

- Some families may need additional parenting support
  - Autism, severe disabilities
- More developmentally supportive parenting lead to better outcomes
  - Multicausality and multifinality
  - Parenting across multiple domains can support the cognitive and language development of children with a disability

An early intervention concern

- Rarely do EI programs have parenting as a focus of intervention solely for the sake of improving parenting
- Parenting increases the effectiveness of EI
  - Impacts of parenting on family and child development (Trivette et al., 2010)
  - Parenting may play a mediator role (ACF, 2002; Innocenti & Roggman, 2012
    - multiplicative rather than additive
- Parenting not the sole focus of EI
- More research needed on parenting as an EI focus

References

- Innocenti, M. S., Roggman, L. A., & Cook, G. A. (2013). Observing parenting interactions with children with a disability. *Infant Mental Health Journal, 34,* 307-318.
- Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V., Christiansen, K. (2013). Parenting interactions with children: Checklist of observations linked to outcomes (PICCOLO) in diverse ethnic groups. *Infant Mental Health Journal, 34,* 290-306.

PICCOLO™

http://www.brookespublishing.com/resource-center/screening-and-assessment/piccolo/

For more information

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Special thanks to my colleagues:

Lori Roggman, Gina Cook, Vonda Jump Norman

Thank you!

Q & A

- How to Ask a Question
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THANK YOU!

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- **AUCD Website: http://www.aucd.org**
- **EIEC SIG Website: http://www.aucd.org/eiec**

Questions about the SIG?

- SIG Co-Chairs
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