

Language and play development in infants and toddlers with hearing loss

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Play and language study 2013

- Objectives:
 - correlations of language and play development
 - other correlates of play development
 - children in the Family Centred Early Program (FLIP)
 - age 9 to 36 months
- Study design:
 - cross sectional
 - epidemiological
 - only EI provider in Upper Austria (13.500 births/year)



Sample

- Total sample in Early Intervention (9-36 months) in Dec. 2012: 42
- Study sample 41
- Male 27 (65.9%)
- Age: 23.7 months (9.3-35.1)
- Multilingual family background 31%
- 2 children of deaf adults (4.9%)



Sample: age at diagnosis and confirmation of hl

- Age at diagnosis (confirmation): **5.8** months (0.3-30,6)
Percentage of children with diagnosis by 3 months: **41.5%**
- Age at enrolment in EI: mean **8.1** (min 1.0 max 31.4)
Percentage of children enrolled in EI by 6 months: **59.5%**



Sample: hearing loss

- Minimal (<39 dB) n=3 7.3%
- Moderate (40-69 dB) n= 17 41.5%
- Severe (70-89dB) n=5 12.2%
- Profound (90>dB) n=9 22%
- Mean hearing loss: **67.13 dB**
- 5 Children with CI 12,2%
- Unilateral n=7 17%



Sample: modes of communication (parent report)

- Spoken lg only 26 63.4%
- Sign language only 2 4.9%
- Spoken lg & sign lg 7 17.0%
- Simultaneous comm. 6 14.6%

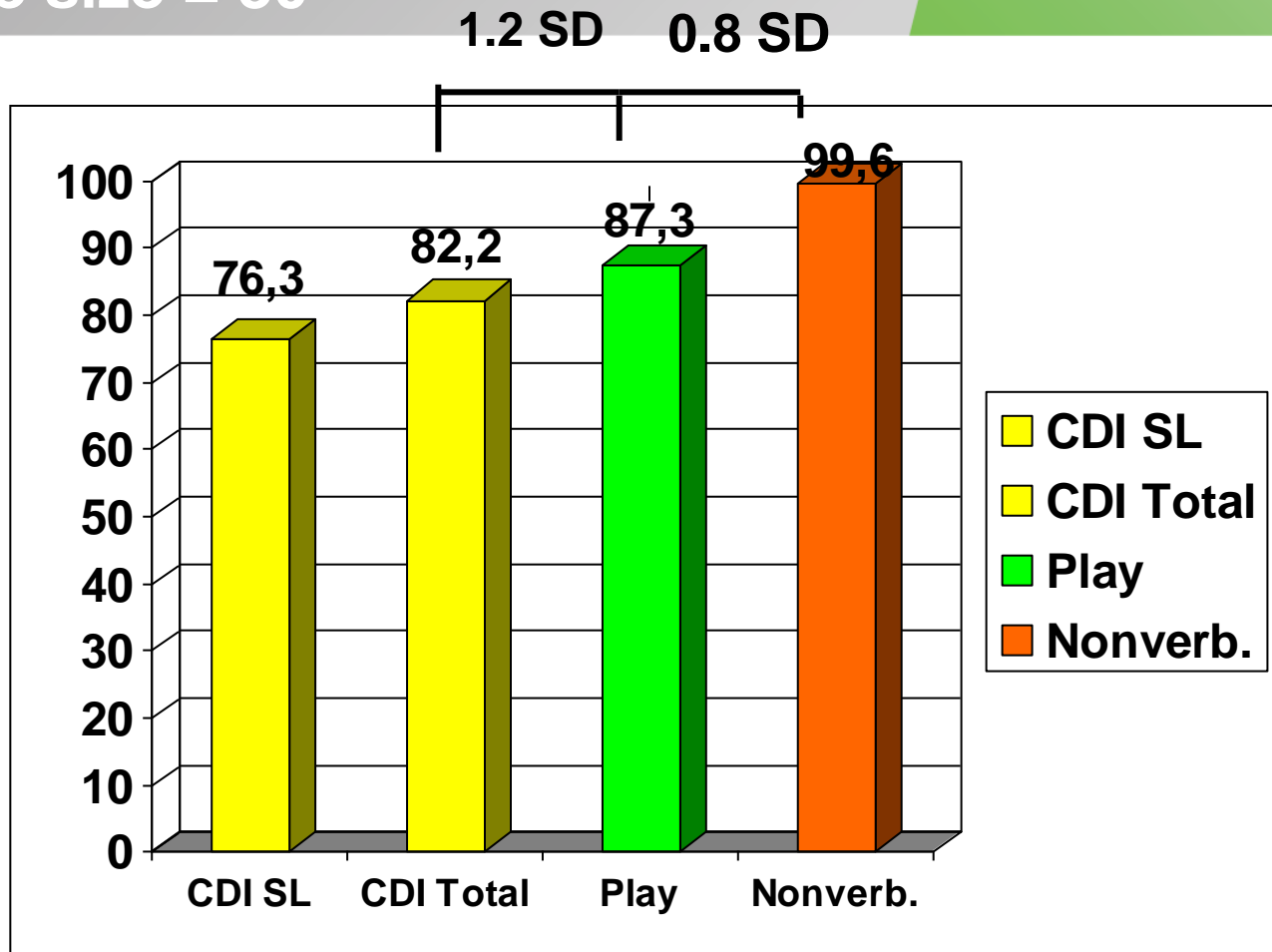


MEASURES

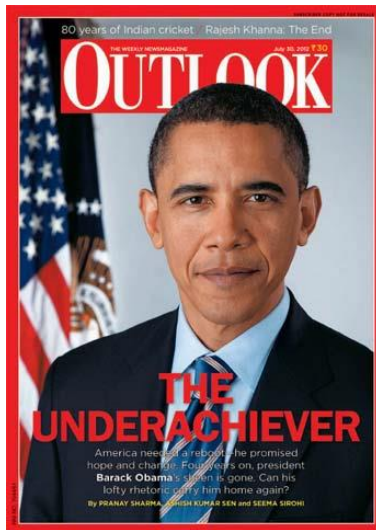
- Child history and family background (parent quest.)
- Audiological results
- Nonverbal development: Bayley, S.O.N.,
- Play development: Play assessment questionnaire (Calhoun 1987), parent report
- Expressive vocabulary (spoken language or total concept vocabulary sign/spoken language): A-CDI (Austrian version of CDI), parent questionnaire



Sample after exclusion of children with intellectual disability (n=4) and those with unilateral hl (n=7) sample size = 30



Underachiever



Outcomes and accomplishments fall behind the personal potential!



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Achievers- Underachievers *

	Achievers Voc. ≤ 1 SD of IQ N=14 (47%)	Underachievers n=16 (53%)	Total n=30	p
Nonverbal IQ	99.3	99.9	99.6	.898
male	64.3%	68.8%	66.7%	.796
multilingual	50%	31.3%	40%	.269
Ed. level mother (0-4)	1.4	1.3	1.3	.743
Family Resources	3.8	4.3	4.1	.238
First position among siblings	50.0%	56.3%	53.3%	.732
Age at assessment	23.1	24.7	23.9 (8.05)	.597

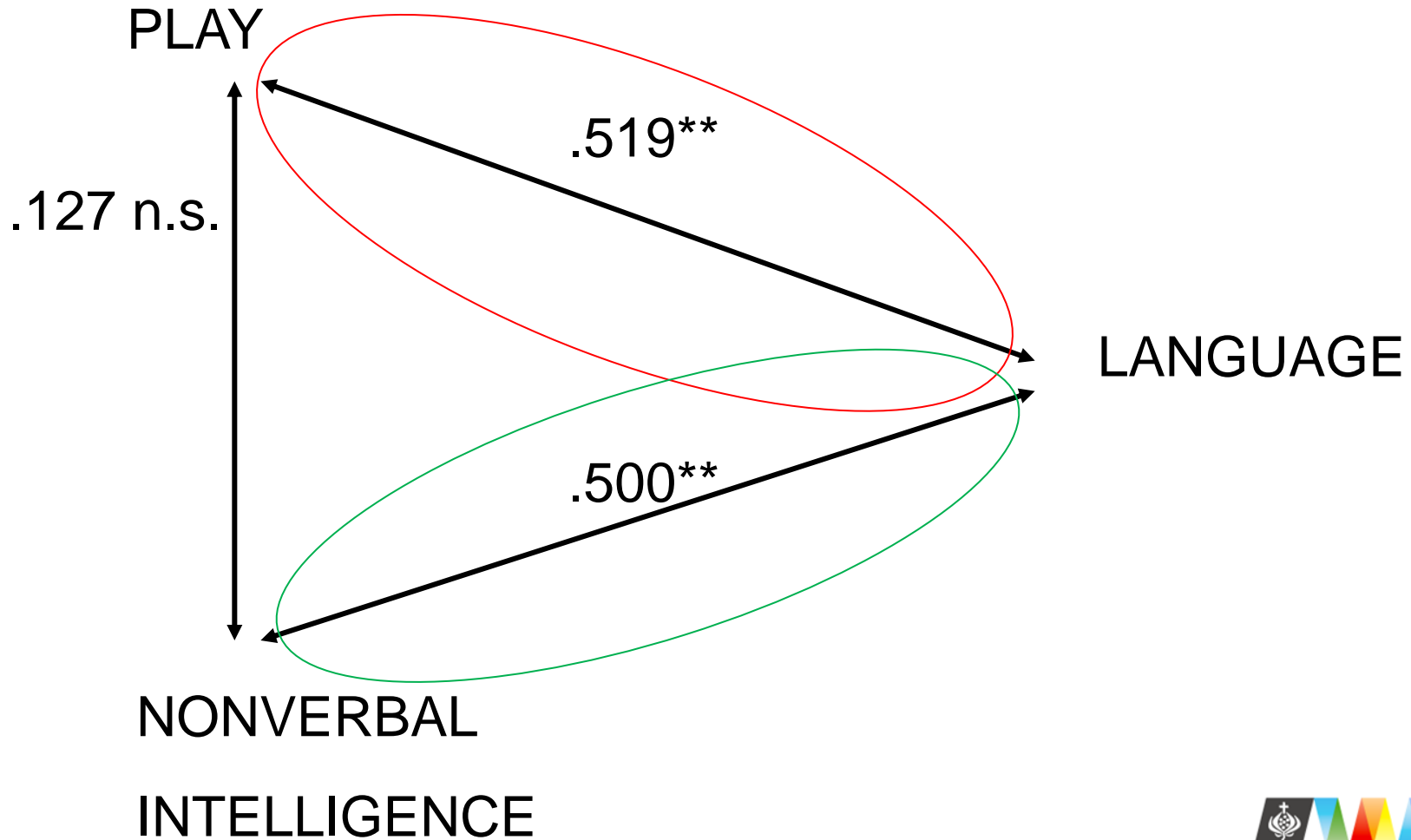
* After exclusion of children with IQ <30 and children with UNHL



	Achievers Voc. ≤ 1 SD of IQ N=14	Underachievers n=16	Total n=30	p
Age at confirmation	6.5	6.6	6.5	.961
Age at HA fitting	6.6	7.6	7.2	.705
Age at EI enrollment	8.1	7.7	7.9	.899
Hearing loss	60.2	72.3	66.6	.178
Play development	95.9	79.8	87.3	.041



Correlations between play, language and nonverbal cognition



Explanation of variance in language development (total vocabulary) n=30

Stepwise lin. regression		B	R2
Step 1	Nonverbal Intelligence	.441	22.3%
Step 2	Play quotient	.463	42.1% (+19.8)



A Play supports language development

B Language development supports play

C Common underlying factor associated with both play and language development (not nonverbal IQ per se)

Parallel Play and Language Development: L. McCune/Rutgers University (n= 102: 8-24 months)

- **1. Functional use of objects: 10 months**
 - function/“meaning“ of objects
 - **Understands frequent words**
- **2. Simple pretend play: 13-15 months**
 - Pretend play
 - **Use of first active words (One word utterances)**
- **3. Sequential pretend play: 19 months**
 - Combinations of play actions
 - **2-word-utterances**

- **4. Hierarchic pretend play: 24 months**
 - planned and multi-step
 - **3-word combinations**
- **5. social pretend play: with other children: 2 ½ years**
 - Narrative skills (emotional and social development)



The role of play in the promotion of language development (Skolnick Weisberg et al 2012)

- 1. Play provides children with opportunities to practice forming **symbolic relationships** (McCune 1995; Miller and Almon 2009; Piaget 1962; Vygotsky 1967....)
- 2. **Social interaction** inherent in many types of play may feed language development (taking on roles, negotiating → use of mental state verbs)

- **3. Sheer amount of language** input available in play contributes to language development
 - Christakis, Zimmerman, and Garrison (2007); Levy, Schaefer, and Phelps (1986); Lovinger (1974); and Smilansky (1968): Increasing the amount of play supports language development

- 4. Play allows children to be in control of an interaction (**actively engaged**). Children more likely to learn new vocabulary when adult follows their interest.
 - Hon et al 2010, Dickinson et al 2013, Ferrer et al 2011: Importance of parents following their children`s lead while scaffolding the interaction: effects on language development! (Guided play vs. free or adult directed play!)

“Guided play, which incorporates elements of adult scaffolding in service of a learning goal but which primarily follows a child’s lead and builds on her interests, provides a particularly effective language-learning environment.”

(Skolnick Weisberg D, Zosh JM, Hirsh-Pasek K & Michnick Golinkoff R 2012)



- Evidence for use of scaffolding strategies adapted to child's language level to promote language development (Dunst et al., Szagun et al. Cruz et al).



Facilitative language strategies adapted to child

Lower level:

- Linguistic mapping
- Imitation
- Close-ending questions
- Comments
- Directives...

Higher level:

- Parallel talk
- Corrective feedback/Expansion
- Recast
- Modifications
- Open ended questions
- Keeping own turn short
- High MLU...

DesJardin 2007, Girolametto et al 1999, Fey, Krulik, Loeb & Proctor-Williams 1999, Huilt & Howard 1997, MCNeil & Fowler 1999, Yoder & Warren 1998, Kaiser & Hancock 2003, Szagun 2001...



Conclusion

- „Underachievements“ in language AND play in children with hearing loss
- Significant correlations between play and language development (not explainable by general cognitive level of functioning)
- Relevance of play development in assessment and intervention



Hearing and language comprehension	Expr. Language	Signing/visual Communication	Social communication pragmatics	PLAY	Nonverbal Cognitiion	Motor	
							10-12 months
							13-15 months
							16-18
							19-22 months
							22-25 months

The graph illustrates developmental trends across six categories over five time intervals. The categories are: Hearing and language comprehension (dark red), Expr. Language (red), Signing/visual Communication (orange), Social communication pragmatics (yellow), PLAY (green), Nonverbal Cognitiion (blue), and Motor (dark blue). The time intervals are: 10-12 months, 13-15 months, 16-18 months, 19-22 months, and 22-25 months. The graph shows a peak in Expr. Language and Social communication pragmatics at 13-15 months, a dip in Signing/visual Communication at 16-18 months, and a general decline in Nonverbal Cognitiion and Motor skills from 16-18 months onwards.

FOCUS ON PLAY & LANGUAGE

- With adults following the child's lead
- Expanding social and symbolic play complexity
- Using language scaffolding strategies adapted to child's language level.



Thank you for your interest!

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