

Transitioning between “Me &
I” to “You & Us”: the
relationship between social
communication and
independent purposeful
movement

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Introduction

Some young children with profound visual impairment have significant difficulties relating to people, objects and the world around them.

Communication

- Early social communication
 - Delays and differences in social personal development
 - Delays in joint attention
- Difficulties with social language continue into adolescence

Motor Ability

- Delays in motor development
 - head lag
 - transitional movements
 - independent locomotion

Adaptive Behavior

- Overall adaptive behavior composite
 - Subdomains
 - Communication
 - Socialization
 - Daily living skills

Contributing Factors

- Caregiver and child misinterpretation and identification of attention
- Hypotonia, spatial disorganization
- Caregiver overprotection
 - linguistically: directive, domineering, high rate of test questions, initiate child restricted topics
 - motor: restrict interaction and exploration

Theoretical Foundation

- Social Learning Theory
 - Learning occurs within social interactions
 - Modeling and observation

Current Study

The study aimed to:

- determine the nature of the relationship between child characteristics, caregiver characteristics and social communication competence in dyad which included a young child with a PVI.

Research Aim

Investigate the relationship between child specific characteristics and caregiver related characteristics and the social communication competence of the dyad.

Related Hypothesis

- H1: Higher child scores on adaptive behavior, motor ability, and language scores are expected to be associated with higher composite joint social communication interaction scores of the dyad.
- H2: Higher parental overprotectiveness is expected to be associated with lower joint social communication interaction scores of the dyad.
- H3: Child characteristics (language age, motor ability, adaptive behavior) and caregiver characteristics (overprotection) contribute to and explain the variance in joint social communication interaction scores.

Methodology

- Non experimental design
- Measures
 - Semi-structured observational protocol
 - Parent reports
- Data Analysis
 - Descriptive and inferential statistics

Participants

- 12 caregiver-child communication dyads
 - children
 - 18-48 months
 - Profound visual impairment (NLP/LP)
 - sit unsupported 5 minutes
 - directed unsupported reach ending in a grasp
 - Caregivers
 - Fluent in English
 - 18+ years of age
- Excluded if non native English or identified developmental disability or hearing impairment
- Recruitment: Agency outreach

Variables

Construct	Measure	Variable
Child's motor ability	O&M Assessment: Birth to Three	Average: Spatial, Gross motor Self-initiation
Child's language ability	MacArthur-Bates CDI (MCDI)	Age equivalent
Child's adaptive behavior	Vineland parent rating scale	Standard scores
Caregiver overprotection	Vulnerable Children Overprotective Parents Scale (VCOPS)	Weighted composite VCOPS
Dyad's communicative interaction ability	Communication Play Protocol (CPP)	Composite CPP

CPP

- Semi-structured observational protocol
 - Characterizes joint engagement
 - Child is 'star', caregiver is supporting role
 - Six 5 minute scenes in three contexts:
 - Social interaction, requesting, commenting
 - Standardized list of 'props'
 - Caregiver given 'cue cards'

CPP Coding

Child Engagement State Items	Child Behavior Items	Caregiver Items	Shared Topic Items
Total joint engagement	Initiation of communication	Scaffolding	Elaboration of shared topic
Supported joint engagement	Responsiveness to communication	Symbol highlighting	Sustainability of shared topic
Coordinated joint engagement	Expressive language level and use	Following in on child's focus	Scope of shared topic
Symbol-infused joint engagement	Quality of behavior patterns	Affect	Fluency and connectedness of conversation
	Affect		

CPP Context & Prop List

Context	Scene	“Prop”
	Free play	legos, blocks, animals, doll house or farm, school bus with people
Social interaction	Turns	ball, stacking toy, sorter
	Music	keyboard, toy radio, book with music
Requesting	“Help me”	bubbles, balloons, toy child needs help with
	“I want”	clock, plush toy, favorite toy
Commenting	Art	6 textures (adapted from pictures)
	Container	five small objects

CPP Cue Card

Scene 2: THE MUSIC FESTIVAL

PLOT: _____ and you enjoy music together.

SUGGESTIONS: Sing _____'s favorite song with her/him/

Play a musical instrument and encourage _____ to sing and dance along.

Social Interaction



Commenting



Requesting



Inter-observer agreement

33% of all videotaped sessions (7 random scenes per context) were coded by an additional observer. Agreement was reached when coded +1, -1. Disagreement was settled by discussion.

Cohen's Kappa for this study .72

Participants

Participants	Child Age (months)	Child Gender	Early Intervention	Etiology	Caregiver Age (yrs.)	Caregiver Education
P1	21	Male	Home	ONH	24	High School
P2	26	Male	Center	ONH	24	College
P3	48	Male	Center	ONH	26	College
P4	48	Male	Center	ONH	32	College
P5	48	Male	Center	Microphthalmia	40	College
P6	25	Male	Home	Anophthalmia	36	College
P7	46	Male	Center	ONH	39	College
P8	30	Female	Center	ONH	19	High School
P9	26	Female	Home	ONH	23	High School
P10	40	Female	Center	ONH	43	College
P11	48	Female	Center	ONH	19	High School
P12	30	Female	Home	ONH	32	College

Communication Profile

Context	CPP Scene	Composite scores by CPP scene			
		Mean (SD)	Minimum	Maximum	Range
Requesting	Help	47.58 (15.32)	31	81	50
	Want	55.02 (21.88)	23	89	66
Social interaction	Music	55.08 (12.85)	32	76	44
	Turns	61.50 (19.54)	31	100	69
Commenting	Art	61.08 (18.98)	37	101	64
	Hidden	64.42 (21.60)	40	105	65

Results

- H1: It is expected that higher child scores on motor ability, language, and adaptive behavior will be associated with higher composite communicative interaction scores of the dyad.

The child's motor ability and the communicative interaction scores of the dyad were strongly positively correlated, $r(10) = .61, p < .05$.

The child's language ability and the communicative interaction scores of the dyad were strongly positively correlated, $r(10) = .74, p < .01$.

The child's adaptive behavior and the communicative interaction scores of the dyad were not correlated, $r(10) = .19, p = n.s.$

Results

- H2: Higher parental overprotectiveness is expected to be associated with lower communicative interaction.

Caregiver overprotection and the communicative interaction scores of the dyad were not significantly correlated,
 $r(10) = -.28, p = n.s.$

Correlation Matrix

	CPP	Child Age	Caregiver Age	Caregiver Education	Language Age	Over protection	Motor Ability	Adaptive Behavior
CPP	1	0.256	0.342	0.358	.740**	-0.217	.618*	0.192
Child Age	0.256	1	0.348	0.326	0.326	0.172	-0.014	-.774**
Caregiver Age	0.342	0.348	1	.633*	.722**	0.401	0.481	0.027
Caregiver Education	0.358	0.326	.633*	1	0.539	0.071	.712**	0.133
Language Age	.740**	0.326	.722**	0.539	1	0.203	.685*	0.206
Over protection	-0.217	0.172	0.401	0.071	0.203	1	-0.036	-0.211
Motor ability	.618*	-0.014	0.481	.712**	.685*	-0.036	1	0.512
Adaptive Behavior	0.192	-.774**	0.027	0.133	0.206	-0.211	0.572	1

* $p < .05$ ** $p < .01$ (Two-tailed)

Results

- H3: Child characteristics (language age, motor ability, adaptive behavior) and caregiver characteristics (overprotection) contribute to and explain the variance in CPP.

Child language ability and caregiver overprotection explained a significant proportion of variance in the communicative interaction scores of the dyad,
 $R^2 = .717$, $F(4,7) = 4.44$, $p < .05$.

Multiple Regression Summary

	<u>b</u>	<u>SE b</u>	<u>β</u>	<u>Sig.</u>
Constant	161.225	99.800		0.112
Age of child	0.637	2.101	0.070	0.699
Caregiver age	-2.792	3.825	-0.230	0.457
Language age	12.405	3.868	0.957	0.014
Overprotection	-59.311	40.745	-0.351	0.183

$$\hat{y} = 161.225 - 2.792 (\text{caregiver age}) + .637 (\text{child age}) + 12.405 (\text{language age}) - 59.311 (\text{overprotection})$$

Model Selection summary

Predictors	Model Statistics				
	R^2	R^2_{adj}	Cp	AIC	BIC
Mac	0.629	0.490	4	106.018	107.958
VCOPS	0.292	0.027	4	113.781	115.721
Motor	0.456	0.252	4	110.614	112.553
Vineland	0.448	0.241	4	110.802	112.742
Mac VCOPS**	0.717	0.556	5	104.739	107.184
Mac Motor	0.661	0.468	5	106.929	109.353
Mac Vineland	0.643	0.439	5	107.557	109.981
Motor VCOPS	0.515	0.238	5	111.241	113.666
VCOPS Vineland	0.485	0.191	5	111.962	114.306
Motor Vineland	0.478	0.180	5	112.118	114.543
Mac Motor VCOPS *	0.729	0.503	6	106.252	109.161
Mac VCOPS Vineland	0.717	0.482	6	106.759	109.669
Motor VCOPS Vineland	0.522	0.124	6	113.069	115.979
Mac Motor Vineland	0.662	0.380	6	108.908	111.818
Mac Motor VCOPS Vineland*	0.742	0.433	7	107.655	111.059

Discussion

- Motor ability
 - Engagement
 - Initiation
 - Autonomous
- Adaptive behavior
 - Gap widens

Discussion

- Overprotection
 - Age matters
 - Relationship to language

Discussion

- High positive affect
- Context matters
 - Determined attentional focus
 - Routines
 - Positioning

Discussion

- Restrictive
 - Scope
 - Play activity
- Repetitive
 - Labeling
 - directive
- Sustaining interaction
- Evaluation and assessment

WNL?

Participant	Language difference	Motor difference
P1	-18	-11
P2	-20	-17
P3	-38	-41
P4	-25	-37
P5	-13	-26
P6	-1	-13
P7	-12	-25
P8	-2	-7
P9	-8	-11
P10	-17	-22
P11	-28	-42
P12	0	+3

Implications

- Intervention which targets both child and caregiver characteristics
- Need for direct intensive intervention to promote independent purposeful movement- autonomy, self determination, engagement
- Focus on interaction rather than solely on skill development
- Lead to comparison of communication profiles of congenitally blind children and children with ID or ASD- where do they fit? How can we support?

Limitations

- Exploratory
- Small sample size
- “Snapshot” only

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